The Black Sheep Effect as a Function of Information Processing Depth

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[1] Obwohl diese Aussage statistisch nicht belegt ist, geht sie doch auf eine Reihe von persönlichen Beobachtungen (N~10. Oder 20.) des Autors dieser Arbeit zurück.

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Chapter I - Introduction

I.1. General Introduction

Being member of a social group quite probably is one of the most important needs that humans share (Brewer, 1991). Defining a group as two or more individuals that perceive themselves as sharing a common social category (Brown, 2000), it appears that in almost all societies, individuals bond with others and strive for being part of a collection of people. Most individuals are members of a certain profession or study a certain subject, are citizens of a country and virtually all belong to an ethnicity. They are often members of groups that follow specific goals, offer incontestable worldviews or prevent their members from eating processed animals. As a matter of fact, social groups determine what and who individuals are, thus being of vital importance to every individual's identity (Brown, 2000; Tajfel, 1979; Tajfel & Turner, 1986). But what if the image of a group we belong to is questioned? There is a plentiful of ways to challenge a group's integrity. One highly disturbing event for group members seems to be, when this integrity is questioned from *inside the group*. In other words, individuals should be highly attentive and alarmed when they feel their social identity to be jeopardized by a close other who one expects to share similar goals and beliefs with—an ingroup member. For example, imagine a highly conservative political party with traditional views and Christian beliefs. When a member of this party behaves in a way that does not confer to the norms that prevail, for instance by proclaiming abortion or following a polygamous lifestyle, other party members will very likely feel their ingroup's norms being jeopardized, and thus pay much attention to the deviant's behavior. As it were, people strive to maintain and ameliorate their group's image, and try to protect the group from such individuals who behave in an inappropriate way (Marques & Paez, 1994). Therefore, a considerable amount of cognitive effort needs to be invested in order to understand what is happening in such situations, and how to deal with them.

The overall aim of this dissertation is the analysis of cognitive processes that determine how people respond to those who question their group's image (i.e., norm deviants). This is important, because we assume that the depth of information processing is a major determinant of such responses. In the frame of the *black sheep effect* (BSE, Marques & Yzerbyt, 1988; Marques, Yzerbyt, & Leyens, 1988)—the tendency to devalue deviant ingroup members more strongly than deviant outgroup members—it deals with the assumption that processing of deviance information differs as a function of the deviant's group membership. Precisely, we claim that group members process information about an ingroup norm deviant more systematically than information about an outgroup norm deviant. These differences in information processing are assumed to affect how strongly people devalue such deviance, and thus affect the BSE.

In the first chapter, we will briefly introduce *social identity theory* (SIT, Tajfel & Turner, 1979, 1986) as the major conceptual framework of the BSE. This effect, describing the relative derogation of negative ingroup members in comparison with outgroup members, has stimulated a fruitful and comprehensive empirical and theoretical debate about its underlying motivations. Both the origin of the BSE as well as major approaches to explain it will be considered. We will focus on the social identity approach that has mainly been advanced by the original authors, but also consider alternative approaches that aimed to explain the BSE. As we assume that the extent of information processing is an important determinant for the BSE, we will elaborate on the potential influence of information processing depth on the BSE in the second part of Chapter I. Models of social judgment suggest that individuals use different modes of information processing based on the information they are confronted with, and thus offer a promising framework for analyzing individuals' responses to norm deviance. In the current work, particular reference will be given to the heuristic-systematic model (HSM, Chen & Chaiken, 1999) as one of the increasingly popular dual process models that seems appropriate to analyze underlying cognitive processes of the BSE.

In Chapter II, the empirical analysis of the dissertation's research question will be initiated. In three experiments, we first tested whether information about a norm deviant is processed differentially as a function of group membership. Precisely, we argue that information about ingroup deviants is processed more systematically than information about outgroup deviants. This prediction is derived from the HSM and prior empirical work, which states that highly self-relevant information motivates people to

engage in a more systematic mode of processing. Given the importance and centrality of the ingroup for individuals' social identity, it is thus highly plausible that information about an ingroup deviant instigates more systematic information processing than information about an outgroup deviant. It will be argued that these differences in information processing determine the BSE. In the first experiment (Chapter II.5.), we used a self-report measure whereas in Experiment 2 (II.6.) an implicit measure of information processing was applied. Drawing from neuropsychological findings of brain lateralization in cognitive tasks, we used a line-bisection task (Milner, Brechmann, & Pagliarini, 1992) to measure relative hemispheric brain activation after exposure to either an ingroup or an outgroup deviant in the second experiment. The third experiment (II.7.) in this chapter focuses on the question whether manipulating information processing modes indeed affects the BSE. Using two ways to induce systematic information processing, orthogonally manipulated with deviant's group membership, we tested their combined impact on devaluation of the norm deviant. The pattern of results and its implications will be discussed.

In Chapter III, we aim to clarify the proposed relation between information processing and devaluation. In a preliminary study, we focused on the relation between information processing and devaluation of an ingroup norm deviant. Based on SIT and empirical findings from previous research (Coull, Yzerbyt, Castano, Paladino, & Leemans, 2001), we claim that the more people think about an ingroup deviant, the stronger they devaluate this person. The initial study presented in Chapter III confronted participants with an ingroup deviant, followed by a measure of devaluation and information processing. With this study, we sought initial, correlational evidence for the anticipated relation between information processing modes and deviant devaluation.

In Chapter IV, we consequently manipulated information processing and assessed participants' responses towards deviants across three experiments, focusing on the impact of restrained cognitive resources. Experiment 1 (IV.5.) tests the BSE and whether ingroup information is processed more systematically than outgroup information. This represents a replication of Experiment 1 in Chapter II, additionally assessing devaluation of the deviating ingroup versus outgroup member. Experiment 2 (IV.6.) tests the causal influence of information processing on ingroup devaluation by means of a cognitive load manipulation. In Experiment 3 (IV.7.), we further elaborated

on the cognitive rootedness of the BSE. Assuming that the mere associative proximity of a deviant to one's group, and thus the self, suffices to elicit a BSE (Jonas, 2009), we used an automatic response priming paradigm (Jonas & Sassenberg, 2006) to measure punishment. In order to test whether information processing depth also affects this associative proximity, and thus punitive reactions towards an ingroup deviant, we orthogonally manipulated both group membership of the deviant and depth of information processing. With these experiments, we sought further evidence that the BSE has an important underlying cognitive process that reduces or facilitates participants' propensity to punish and devalue norm deviants.

The final Chapter V will briefly review the findings obtained in the collection of experiments conducted for this dissertation. The overall pattern of results will be discussed and theoretically integrated into the BSE research and norm deviance literature. Implications and pathways to further research on this field will be presented.

I.2. Social Identity, Ingroup Bias and Reactions to Norm Deviance

I.2.1. Social Identity Theory and the Importance of a Group for its Members

The core ideas advanced in the current dissertation built up on one of the most comprehensive intergroup theories social psychology has to offer. According to SIT (Tajfel & Turner, 1979, 1986), social identity is primarily derived from group memberships (i.e., by being part of a collection two or more individuals that perceive themselves as sharing a common social category). In basic terms, SIT proposes that group members strive for a positive social identity, thereby boosting their self-esteem. This pursuit for a positive identity derives largely from favorable comparisons with relevant outgroups or in other words, by positive differentiation. SIT also posited a distinction between personal identity and social identity. Whereas personal identity is defined in terms of idiosyncratic personal relationships and traits, social identity becomes relevant in group situations that are mainly determined by category-based processes (Brown, 2000).

When social identity is salient, it is possible that intergroup comparisons lead to unfavorable outcomes, or other events occur that are unsatisfactory with regard to one's social identity. In such a case, people seek ways for achieving more positivity or means to restore a "damaged" identity. Among other social identity management strategies, group members can leave their group, compete with or derogate members of other

groups to reestablish positive distinctiveness or differentiation (Brewer, 1979; Mullen, Brown, & Smith, 1992). In fact, people strive for an "optimal distinctiveness", for a balance between conflicting motives for ingroup inclusiveness and separateness (Brewer, 1991). The use of such identity management strategies depends on a variety of conditions, including the strength of the group's boundaries or the individual's mobility (Blanz, Mummendey, Mielke, Klink, 1998; Ellemers, 1993).

In fact, SIT's basic assumptions have been widely used to explain and understand a variety of intergroup phenomena—such as responses to status inequality (Doosje, Ellemers & Spears, 1995a; Ellemers, van Knippenberg, & Wilke, 1990; Oldmeadow, 2006), intragroup hetero- and homogeneity (e.g., Brown, 2000; Doosje, Spears, Ellemers, & Koomen, 1999; Linville, Fischer, & Salovey, 1989; Ostrom & Sedikides, 1992; Voci, Hewstone, Crisp, & Rubin, 2008), social discrimination (e.g., Mummendey & Wenzel, 1999), improvement of intergroup relations through contact (e.g., Dovidio, Gaertner, & Validzic, 1998; Gaertner & Dovidio, 2000), or ingroup bias (e.g., Mullen et al., 1992; Brewer, 2007). This (non-exhaustive) list of findings is meant to illustrate the profound impact of social identity theorizing on intra- and intergroup processes. With regard to the current work, the phenomenon of ingroup bias is of particular importance, as the BSE has been termed a sophisticated form of ingroup bias (Marques & Paez, 1994; see Chapter I.3 on the BSE).

But why exactly should group members engage in behavior that serves their group? In other words, what is it that makes groups so important and vital for its individual group members so that they want to keep it positive and even protect? A substantial amount of research has addressed these questions. Groups are necessary to provide an individual with a sense of both assimilation and differentiation (Brewer, 1991) and serve as functional instrument for increasing individuals' potential for survival (Caporael, 1997). Prior to the formulation of SIT, realistic group conflict theory (LeVine & Campbell, 1972; Sherif, Harvey, White, Hood, & Sherif, 1961) stated that group relevance is related to gaining and defending material resources. In terms of SIT, such conflicts may of course also contribute to intergroup differentiation. As a matter of fact, groups offer social meaning to individuals (Abrams & Hogg, 1988, 2001; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) and strongly influence the evaluation of the self (Abrams & Hogg, 1990). Social groups are indispensable for the personal self-concept (Baumeister, 1998), necessary to feel distinct from others (Brewer, 1991; Jetten,

Spears, & Postmes, 2004), increase feelings of certainty (Hogg, 2000, 2004), and provide its group members with shared worldviews (Greenberg, Solomon, & Pyszczynski, 1992). Drawing directly from SIT's idea that individuals are motivated to enhance or protect their self-esteem, a more recent approach suggests that groups serve as a *psychological utility* that are useful in doing so (Correll & Park 2005). In their review, these authors explore three dimensions they assume to have the most important influence on how group members perceive themselves: Perceived group value, self-relevance and the group's entitativity. These dimensions will be briefly described in the following, because we think they neatly sum up the importance of the in-group for its individual group members.

The perceived group value depends on the merit people can draw from the group, the power and reputation the group possesses but also on the amount of consensus among group members with regard to views, norms and values. Moreover, people want to belong to relevant groups, therefore a certain fit between individual's needs and what the group offers is necessary. The relevance of a group is reflected by an individual's identification with the ingroup or, in other words, by the strength of the connection between the self-concept and the group as part of the individual's identity. The stronger this connection, the more important should the group and its functioning be for the individual. Consequently, positive information about the group should affirm the positivity of the ingroup, in particular for strongly connected group members. In turn, negative information (i.e., about an ingroup deviant) should pose a threat to the group and its integrity. The third dimension focuses on the role of group entitativity—the degree to which a group constitutes a coherent entity. Precisely, Correll and Park (2005) argue that a highly entitative group should be more significant for its group members, because these groups are both coherent and meaningful, thus providing a higher amount of information and validity (see also Yzerbyt, Castano, Leyens, & Paladino, 2000).

For the current dissertation, this model is helpful, as it provides a comprehensive account of why individuals care about their ingroup. Connecting the basic predictions of SIT and related research (see above) on how the ingroup contributes to the individual's social identity, the model defines core dimensions that determine the utility, and thus the importance, of an ingroup for its group members. So, according to Correll and Park, an ingroup constitutes an important social resource that supplies its members with

meaning, social functioning and comparison standards. And this resource needs to be defended and protected when individuals want to draw a positive social identity from it. Most research focused on ingroup bias as a psychological reaction people show when they strive to positively differentiate or protect their social identity.

I.2.2. Ingroup Bias as a Strategy to Positively Differentiate the Ingroup from Others

Biased intergroup evaluations—the fact that in general, group members are prone to consider their own group to be superior to other groups (Brown, 2000)—is a widespread occurrence (for a meta-analysis, see Mullen et al., 1992; for an overview, see Hewstone, Rubin, & Willis, 2002; see also Brewer, 2007) that can be directly derived from SIT. In fact, ingroup bias represents a typical manifestation of the theory's predicted need for positive distinctiveness. Moreover, the discovery that group members seem to feel better after such discriminating behavior further supports the notion that social identity processes underlie the emergence of ingroup bias (Brown, 2000)—group members want to feel good about their group. And they do, for example by derogating members from other groups. Recently, Scheepers and colleagues (Scheepers, Spears, Doosje, & Manstead, 2006) presented a functional approach to understand ingroup bias. Precisely, they argue that prior conceptualizations of ingroup bias were limited in their scope, as these approaches did not differentiate underlying motives that set ingroup bias into motion. Therefore, Scheepers et al. proposed that different forms of ingroup bias exist (e.g., material versus symbolic forms), which serve different functions. They further claim that ingroup bias can have both an instrumental function and an identity function, which wll be sketched in the following.

The *instrumental function* of ingroup bias has been conceptualized as the way in which ingroup bias can facilitate the achievement of certain goals. These goals can either be psychological or material, and can relate to personal purposes or serve the group. In particular, Scheepers and associates operationalized the instrumental function in how ingroup bias can mobilize ingroup members to engage in social change (e.g., striving for a change in group status) and competition with outgroups. The *identity function*, in comparison, is sketched as the way in which ingroup bias contributes to the *creation* and *expression* of a distinctly positive and meaningful social identity. These two sub-functions of ingroup bias—identity creation and expression—thus are fundamental, as they provide the basis for a positive social identity. For *identity creation*, ingroup bias is

functional as it facilitates group distinctiveness, thus providing a meaningful basis for self-definition that in turn allows group members to feel more certainty and "group spirit". The functionality of ingroup bias for *identity expression* is important as it helps to confirm and to validate one's social identity. In this regard, the collective experience of the group's positivity or superiority is prominent, as it tells others what the ingroup is about (Scheepers et al., 2006).

The presented work on ingroup bias and the previous analysis on why individuals care about their group suggest that the ingroup and one's belonging to it is one of the most prevalent needs group members share. Yet, over the past two decades, a relatively stable phenomenon of ingroup devaluation, instead of ingroup favoritism, has been observed—the so-called BSE. At first glance, this effect appears to be counterintuitive, as it occurs to jeopardize the basic premise of ingroup favoritism that is predicted by SIT. As will be described in the subsequent section, it is not.

I.3. The Black Sheep Effect

In the late Eighties of the passed century, Marques, Yzerbyt and Leyens (1988) described an effect of ingroup derogation that has been coined the *black sheep effect* (BSE). Whereas most research at that time focused on ingroup favoritism and outgroup derogation (Brewer, 1979; see Mullen et al., 1992, for a meta-analysis), Marques and colleagues described the effect that ingroup members can also be judged more negatively compared with outgroup members (for a recent meta-analysis on the BSE, see Stratton, Miller, & Lickel, 2010). In a first study, Marques et al. (1988, Experiment 1) asked participants to rate a target person on a number of traits. The targets presented to the participants were "likable", "neutral" or "unlikeable" and either belonged to the ingroup (Belgian students) or an outgroup (North African students). After presentation of the targets, participants were asked to judge them on several positive and negative traits (e.g., sociable, cheerful, cold, unpleasant) provided by the experimenters. As predicted by the authors, a significant interaction was found, indicating that participants judged a likable ingroup member more positively than a likeable outgroup member. However, an ingroup member who was perceived to be unlikeable received less positive trait ratings compared with an unlikeable outgroup member.

In another study by Marques and colleagues (1988), participants were asked to imagine that either ingroup (Belgians) or outgroup (Germans) members initiated a riot

at a football game. In line with their first study, Marques and colleagues predicted that Belgians would judge Belgian supporters more negatively than German supporters. Results revealed exactly the predicted pattern. These initial studies were conducted using between subjects designs, leaving the door open for a possible artifact. According to the original authors, it might have been that derogation of unlikeable ingroup members occurred due to the lack of an explicit social comparison context. This potential artifact, however, has been ruled out in another set of studies that showed that the BSE emerges both when an intergroup context is salient and when it is not (Marques & Yzerbyt, 1988).

Before we present the prominent explanations of the BSE in detail, let us illustrate the effect by means of two short examples. In fact, the BSE shows how group members cope with other group members that, for whatever reason, do not confer to the norms and rules that are expected from them. In many real life situations, groups have to deal with members that do not behave in line with the group's norms. One strategy to handle these cases would be to convince the deviant to restrain his or her deviant behavior. But often, group members react with direct means of punishment, for example, by devaluating or excluding the deviant.

In politics, this effect seems to be particularly profound. Wolfgang Clement, former minister in the social democratic government, publicly demanded from his party members to behave in a group-destructive way. Precisely, he called on voters in Hessen not to vote for the social democratic party. The reaction of his comrades came immediately, culminating in the exclusion of Wolfgang Clement from the social democratic party.

As described above, the BSE is defined as a relative devaluation of ingroup members—relative with regard to outgroup members. In the previous example, it is difficult to imagine that party members would react at all when members of another party demand not to vote their own party. That is just what the other parties normally do. But recall Stefan Effenberg, former soccer player in the German national soccer team in the mid-nineties. Once a big and famous player of the German team, he managed to become one of the most overtly hated German players ever. His temper drove him to "give the finger" to the German fans during an important game, resulting in media-supported hatred, and finally exclusion from the national team. In comparison, an outgroup member who behaved in a similar way (imagine David Beckham "giving the

finger" to the German fans) would have been immediately present in the media for a couple of days, but soon be forgotten. Apparently, ingroup members are unpleasant costumers to deal with when their social identity becomes threatened by alleged fellows. The possible mechanisms of the BSE will be discussed in the next section.

I.3.1. The Social Identity Approach Towards Explaining the Black Sheep Effect

At first glance, the BSE appears to contradict basic assumptions brought forward by SIT (Tajfel & Turner, 1986) and self-categorization theory (Turner et al., 1987). According to these major theories, ingroup members should be preferred over outgroup members to ensure positive differentiation from outgroups. A vast amount of research on ingroup bias supports this notion (Brewer, 1979; Hewstone et al., 2002; Mullen et al., 1992). However, it could be argued that the BSE constitutes a more elaborated form of ingroup favoritism. Indeed, Marques and colleagues claim that by (symbolically) excluding a deviant ingroup member from the group, the overall positivity and integrity of one's group, and thus one's social identity, will remain stable. Therefore, getting rid of those who do not follow group norms serves as strategy to protect the ingroup, which in turn differentiates it from other, less coherent groups (Marques & Paez, 1994; see also Hutchison, Abrams, Gutierrez, & Viki, 2008).

Following the initial studies by Marques and colleagues (Marques, Robalo, & Rocha, 1992; Marques & Yzerbyt, 1988; Marques et al., 1988) research accumulated over the past two decades confirming the BSE and its social identity-based motivation, both in laboratory as well as in real life settings. It occurred among different social groups, such as young adolescents who were asked to judge poorly performing ingroup versus outgroup high-school students (DeCremer & Vanbeselaere, 1999). The effect was also found among members of political parties when an ingroup party member sponsored a negative advertisement (Matthews & Dietz-Uhler, 1998), among catholic people who were asked to judge a female ingroup or outgroup member who conducted an abortion (Bègue, 2001), gender groups (Khan & Lambert, 1998) and students (Oishi & Yoshida, 2002).

Variables that moderate the BSE have also been identified, including moral emotions (Chekroun & Nugier, 2005), fairness of performance circumstances (DeCremer & Vanbeselaere, 1999), uncertainty about ingroup superiority (Marques, Abrams, & Seridio, 2001), or typicality of a deviant (Castano, Paladino, Coull, & Yzerbyt, 2002).

Moreover, the BSE was shown to be moderated by the extent of ingroup identification (Bègue, 2001; Branscombe, Wann, Noel, & Coleman, 1993; Coull et al., 2001). Recently, van Prooijen and Lam (2007) found evidence that status inequalities between in-and outgroup moderate the reactions towards ingroup deviants. When the ingroup held higher status than the outgroup, a pattern typical for the BSE occurred, reflected by higher fairness ratings for the punishment an offender received. These moderating variables are generally in line with SIT, but there have also been other empirical approaches that sought for alternative explanations of the BSE.

I.3.2. Alternative Approaches aiming to explain the Black Sheep Effect

These approaches challenge the social identity based explanation of the BSE. One process that confronted the primarily social identity motivated explanation of the BSE could be grounded in strategic motives related to *group success*. In two studies, Morton and colleagues (Morton, Postmes, & Jetten, 2007) found evidence that devaluation of norm deviants may strongly depend on the broader (societal) context the deviance takes place in. In the first study, an ingroup political party candidate expressed opinions that were either normative or deviant to current public opinion, while being either supportive or hostile towards the ingroup party's prominent beliefs. As one might expect, a normative party candidate was preferred over a deviant party candidate as long as public opinion was with the party. However, when public opinion was against the party, participants' support was stronger for the deviant candidate. These results were particularly pronounced among highly identified group members. Low identifiers were less influenced by the public context. This pattern of results was replicated in the second study, using a slightly altered context.

Altogether, these results suggest that ingroup members might upgrade, instead of downgrade, a norm deviant when important goals, for instance public support and increased probability of being elected as a party, can be achieved. Although these studies did not manipulate group membership of the target person, and therefore did not directly test the BSE, the findings also relate to black sheep theorizing. In an intergroup setting, one might thus find a BSE when norm deviance does not contribute to a positive group image. However, when deviance from group norms positively affects the overall image of the ingroup (e.g., by deviating from norms that are working against the group's positive image), it is likely that the BSE diminishes. One potential criticism on this

strategic motive approach in terms of the BSE theorizing, however, remains. The initial experiments by Marques and colleagues (Marques & Yzerbyt, 1988; Marques et al., 1988; Marques & Paez, 1994), as well as work on subjective group dynamics (see following section), already suggested that positive norm deviants are not downgraded compared with outgroup deviants. Therefore, the results by Morton and colleagues (2007) might be less innovative as they seem, because the political party member who deviates in a way consistent with public opinion might be perceived as positive. Although deviating from current norms in the party, the anticipated group success that is attributed to the party member should ameliorate the overall "value" of the deviant. Moreover, strategic concerns people have about their political party are, at least partly, driven by social identity concerns—when a political party is successful, its members will feel good.

Another explanation for the BSE that does not directly derive from SIT was provided by Biernat, Vescio, and Billings (1999). These authors argue that it is not social identity per se, but the perceived *violation of expected behavior* that leads to a stronger devaluation of norm deviants. Biernat and colleagues had participants engage in a live interaction with either an ingroup or an outgroup member who contributed to a team success (positive behavior) or team failure (negative behavior). They assumed that high identification with an ingroup would lead to activation of favorable ingroup standards and expectations against which individual group members are judged. An unfavorable member (the black sheep) would not comply with these expectations, inducing a negative emotional and evaluative response. Outgroup members, however, are not compared against the ingroup standard, resulting in less perceived expectancy violation and therefore less need to devaluate deviant outgroup members. In the study, the BSE emerged as expected, driven by expectancy violation. Still, one could argue that social identity also matters in these authors' analysis, as ingroup identification is the crucial trigger for norm activation, which in turn is the standard group members are compared with.

A theoretical approach that might explain the BSE is based on the social attraction model (Hogg, 1992) that has been derived directly from self-categorization theory (Turner et al., 1987). According to this model, ingroup members, when an intergroup context is salient, are liked more if they are perceived to be highly prototypical for the ingroup. When there is consensus about the ingroup prototype and

members are highly prototypical, a tight network of social attraction exists. This pattern of liking, however, can change dramatically when the group is under threat. In fact, an ingroup norm deviant clearly is far from being prototypical (Castano et al., 2002), and can therefore have a negative and disturbing impact on the network of social attraction (e.g., destroying the group's cohesion and entitativity). In the framework of the social attraction model, the BSE has not yet been systematically analyzed, but might represent an interesting approach for future research by including measures of prototypicality (see also Castano et al., 2002) and measures of social attraction.

Another approach that is of more relevance to the current dissertation was brought forward by Eidelmann and Biernat (2003), who provided evidence that it is rather *personal distancing* than social identity concerns that drive the BSE. In their experiment, participants read an article describing an ingroup or outgroup target behaving unfavorably. Then, participants received two means of responding to the target. They could either devalue the target, which would be the typical reaction in terms of the BSE. Alternatively, they could indicate to disidentify from the group, which was argued to be an individualistic distancing strategy—not being miscast with a negative ingroup exemplar. The authors found that both responses can substitute each other, depending on the order of presentation. When participants first indicated group disidentification, they did not show punitive responses towards the norm deviant. Vice versa, they did not show group disidentification when they had the chance to devalue the norm deviant before. Therefore, as Eidelman and Biernat (2003) argued, the primary motive behind ingroup derogation was the increase in personal distance to the norm deviant, rather than a social identity directed group protection strategy.

Building up on the argumentation by Eidelman and Biernat (2003), a recent finding by Jonas (2009) suggests that non-controlled automatic processes underlie the BSE. Based on the assumption that mere associative proximity of a deviant to one's ingroup suffices to elicit stronger punishment responses, the author showed that the BSE occurs on an automatic basis. Thus, the BSE might not necessarily be driven by concerns about and attempts to protect the ingroup image. Using a lexical decision task, it could be shown that an ingroup associated, deviant category prime led to stronger punishment responses than a comparable outgroup deviant, who is not as strongly associated to the ingroup and the self. This finding emerged only for harsher punishment reactions, but not for softer forms of punishment, being in line with the idea

of the BSE that ingroup deviants are punished more severely than outgroup deviants (Jonas, 2009).

In fact, the studies by Eidelman and Biernat (2003), Biernat et al. (1999) and Jonas (2009) point to a more comprehensive analysis of cognitive processes that might affect the BSE. Such an analysis will be undertaken over the course of the current dissertation, as we think that different modes of information processing predict different outcomes in terms of deviant devaluation.

I.3.3. Summary of the Black Sheep Effect

Taken together, several approaches have been proposed that suggest other processes, apart from the original social identity approach, to determine the emergence of the BSE. Still, the above summary of prominent findings indicates that most research on the BSE has addressed motivational aspects that underlie the effect of ingroup derogation, empirically validating the claim that devaluation of ingroup members serves the goal of group protection. A theoretical frame that encloses the social identity perspective on the BSE had subsequently been presented in work brought forward by Marques and colleagues (Marques, Abrams, Paez, & Martinez-Taboada, 1998; Marques, Abrams, & Serodio, 2001). The theory of subjective group dynamics states that intergroup and intragroup differentiation processes are in a constant interplay as means of sustaining group members' sense of the subjective ingroup norm validity. So, by derogating ingroup deviants more than outgroup deviants, group members attempt to sustain and validate the correctness of their beliefs about their group. The outgroup does not play an important role for the support of ingroup norms, unless outgroup members behave in a way that is consistent with ingroup norms. In this case, outgroup members deviating from their outgroup norm towards the ingroup are more valued than members of the ingroup who deviate from the ingroup norm. When outgroup members deviate from an ingroup norm, however, ingroup members are less concerned about the validity of their norms, thus making outgroup deviance less relevant.

The alternative approaches aiming to explain the BSE have shown that strategies other than ingroup protection lead to differential devaluation of ingroup versus outgroup deviants. Of particular relevance for the current work are the findings by Biernat et al. (1999), Eidelman and Biernat (2003), and Jonas (2009), as they show that basic cognitive processes, such as violated expectancies or associative proximity, can

determine the BSE, too. The current dissertation follows this idea, proposing that the individual's mode of information processing affects the BSE.

I.4. Taking a Step Further – Cognitive Processes that Underlie the BSE

Returning to the starting point of this section on the BSE, it should be mentioned again that the BSE represents a sophisticated form of ingroup bias (Marques & Paez, 1994). It shares with conventional ingroup bias the goal of achieving positive distinctiveness, and thus a positive social identity. The empirical evidence and theoretical argument that have been made support the idea that the BSE is firmly grounded in motivational social identity processes (but see Eidelman & Biernat, 2003; Jonas, 2009). However, the original authors of the BSE themselves claimed the effect to be a "cognitive-motivational strategy" to get rid of those who contribute negatively to the group's identity (Marques & Paez, 1994)[1]. In the frame of SIT, evidence for the "motivational part" of this strategy has been extensively produced and reviewed above.

The "cognitive part" of the BSE, however, is mainly characterized by single attempts to investigate cognitive processes related to the BSE. Marques et al. (1992) assessed the impact of group variability on social judgments, and found that judgments of ingroup members were relatively unaffected by the extent of the group's variability. The study by Biernat and her colleagues (1999, see above) has shown that a perceived violation of certain expectancies people have about their groups affects the extent of the BSE. Coull and his co-workers (2001) found evidence that highly identified, in contrast to lowly identified, ingroup members allocated more cognitive resources to a threatening ingroup member, however, without comparison with an outgroup. Eidelman and Biernat (2003) could show that individuals try to prevent being "guilty by association" with ingroup deviants, resulting in deidentification or punishment/ devaluation of ingroup deviants. Building up on the latter finding, Jonas (2009) found that mere associative proximity can suffice to elicit punitive responses towards ingroup deviants, suggesting that motivational processes of ingroup protection might not be necessary to elicit the BSE. We will further elaborate this issue in Chapter IV.

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[1] In fact, the original authors have not explained what exactly is meant by „cognitive-motivational", but present research that suggests they believe both cognitive as well as motivational (i.e., social identity) processes contributing to the BSE.

A general, underlying cognitive process that may actually underlie the BSE has yet to be identified. In the course of the current work, we will propose that information about ingroup and outgroup deviance is characterized by different information processing modes that are grounded in the different relevance in- and outgroups have for group members. These cognitive information processing modes in turn are predicted to impact on the BSE. An outlook of why information about ingroup and outgroup members should be processed differentially is presented in the following section. The empirical analysis will follow in Chapter II.

I.4.1. The Role of Information Processing in Intergroup Judgment

Given the importance of an ingroup deviant for one's social group and the self, we claim that depth of information processing is an important underlying factor for understanding the BSE. The motivated cognition perspective we take on the BSE is theoretically grounded in the heuristic-systematic model (HSM, Chaiken, Liberman, & Eagly, 1989; Chen, & Chaiken, 1999), one prominent dual-process model among an increasing number of others (e.g., Fiske & Neuberg, 1990; Petty & Cacioppo, 1986; for a review, see Chaiken & Trope, 1999). The HSM aims to explain phenomena of social interaction and processing of social information. A considerable amount of work has been conducted examining the impact of heuristic and systematic processing on social judgment (Chen, Duckworth, & Chaiken, 1999; for a review, see Chaiken, Giner-Sorolla, & Chen, 1996). We use the HSM, as it makes clear predictions about the variables that determine the depth of information processing.

The core idea of the HSM is that judgments about social stimuli are based on two basic modes of information processing—the heuristic and systematic modes of information processing. *Systematic* processing refers to a mode of information processing that is characterized by a relatively analytic, comprehensive and elaborate scrutiny of judgment-relevant information. It involves an in-depth treatment of judgmental information, and is thus highly responsive to the semantic content of such information (Chen et al., 1999). It is prevalent when people carefully consider information, think extensively about its contents, possible relations to other information and connections to prior knowledge. Given its nature, systematic information processing requires cognitive ability and capacity as well as motivation. In contrast, less careful reasoning and superficial scanning of information mainly guide *heuristic* processing. As

the HSM assumes that people are guided in part by a sufficiency principle when making judgments about social stimuli, heuristic information processing is assumed to be often predominant over relatively effortful systematic information processing. However, cognitive economy is also guided by motivational concerns. Thus, the sufficiency principle states that people in social judgment situations attempt to strike a balance between minimizing cognitive effort and satisfaction of motivational concerns. In other words, an individual will exert as much systematic information processing as necessary to properly deal with a social situation. For example, when a perceiver receives information about an ingroup member behaving negatively—likely important information for the perceiver—he or she will exert as much cognitive effort as necessary and possible to reach a sufficient level of certainty that enables an accurate and appropriate response (Chen & Chaiken, 1999). In short, when people are highly motivated and have cognitive resources available, systematic information processing is likely to be elicited, whereas lower levels of motivation and cognitive resources rather result in heuristic processing. Consequently, we argue that information about an ingroup norm deviant, in comparison with an outgroup norm deviant, would elicit a rather systematic mode of information processing, under the premise that sufficient cognitive resources are available.

To our knowledge, the HSM has not yet been applied to analyze reactions to norm deviance in an intergroup context. The principle idea that information about ingroup members is processed differentially than information about outgroup members, however, is less original. Persuasion research in the tradition of the HSM has shown that ingroup members process information from ingroup sources more systematically than information from outgroup sources, indicated by better recall of ingroup information or stronger persuasion and attitude changes (Mackie & Worth, 1989; Mackie, Worth, & Asuncion, 1990). These findings will be integrated in Chapters II and IV.[2]

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[2] We are aware of the fact that other cognitive approaches exist that can explain processing differences between ingroup and outgroup information. Research on the relation of expectancy congruency of information and depth of information processing for example has shown that expectancy has a profound effect on information processing and memory (e.g., Macrae, Schloerscheidt, Bodenhausen, & Milne, 2002; Pendry & Macrae, 1999), in particular when it comes to intergroup-perceptions (e.g., Bardach & Park, 1996; Biernat et al., 1999). This relation, however, is characterized by a number of opposing results, being moderated by a variety of contextual variables (for a meta-analysis, see Stangor & McMillan, 1992), and therefore disregarded in the current work.

So, given the predictions brought forward by the HSM, we claim that information about ingroup deviants is processed more systematically than information about outgroup deviants. Bringing together this line of research with the BSE, we will now argue that these differences in information processing depth are responsible for the emergence of the BSE.

I.4.2. Drawing the Strings Together—The Role of Information Processing Modes for the BSE

We assume that the BSE is characterized by underlying information processing modes that determine how strongly people respond to norm deviance. Drawing from SIT tradition, the BSE represents a sophisticated form of ingroup bias that reflects group members' need to maintain and achieve a positive social identity. By devaluing or downgrading fellow ingroup members who behave negatively more strongly than comparable outgroup members, people aim to protect the overall positivity of the ingroup. Because this positivity of the ingroup is exceedingly important, information about an ingroup deviant should be highly relevant for ingroup members and thus elicit deeper information processing. Logically, information about an outgroup deviant should elicit relatively less systematic processing. In turn, the more people think about ingroup deviance, the more strongly they should reflect on the negative consequences this deviance can have for their social identity. Thus, stronger means to combat this loss of ingroup positivity should be related with, and predicted by, the extent of systematic information processing (see also Chaiken et al., 1996). These hypotheses will be tested in the following chapters. Indeed, except for the initial finding by Coull and colleagues (2001), direct evidence is scarce that individual levels of information processing are responsible for peoples' means to protect the ingroup. But there is also reason to assume that more basic cognitive processes, as for example the mere associative proximity of a deviant to one's own group, and thus the self, are responsible for the emergence of the BSE (Jonas, 2009). Whether depth of information processing can impact on this associative proximity will be revealed in Chapter IV.

Focusing on information processing modes as cause of the BSE is a promising extension to the black sheep research tradition for several reasons. To our knowledge, the union of these two lines of research (research on the BSE and research of systematic and heuristic information processing) has not yet been applied. The strength of the

current dissertation thus is that we gain new insights into the social-cognitive processes upon which people base their differential judgments of ingroup and outgroup deviants. And this is necessary because we think that it is not the motivational concerns per se that determine how strongly people devalue deviance, but the mode of information processing. As will be shown in the following chapters, our analysis enables to include the individual's propensity to process information, allowing more precise predictions for his or her response towards norm deviants. The General Discussions of the chapters and the Overall Discussion will further highlight the implications of this analysis.

Taken together, investigating its information processing basis can further extend theorizing on the BSE. As mentioned above, cognitive processes underlying the effect have hardly been investigated, but are vital given the constant interplay between motivational states and cognition (Dunning, 1999; Fiske & Neuberg, 1990; Kunda, 1990; Kunda & Sinclair, 1999; Schaller & Maas, 1989).

Chapter II – When Black Sheep Make us Think: Information Processing and Devaluation of In- and Outgroup Norm Deviants

We have introduced the idea that ingroup deviance in contrast to outgroup deviance is processed more systematically, and that these differences in information processing determine the BSE. This ingroup focused information processing as well as an initial approach to whether systematic processing affects the BSE will be tested in this chapter, using a typical BSE paradigm (e.g., Marques & Yzerbyt, 1988; Marques et al., 1988) and two distinct measures of information processing.

II.1. Introduction

Human beings derive a substantial part of their identity from group membership. They draw values, worldviews, beliefs and norms from ingroups (Levine & Moreland, 1994; Marques, Abrams, & Serodio, 2001). Also, an ingroup offers social meaning to its members, influences the individual's self-evaluation and serves as a psychological utility to maintain and improve the social self (Abrams & Hogg, 1990; Correll & Park, 2005). An impressive body of research has addressed why individuals care about their ingroup (e.g., Brewer, 1991; Caporael, 1997; Tajfel & Turner, 1986). As people strive for their social identity to be positive (Rubin & Hewstone, 1998; Tajfel & Turner, 1986; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), group members should be strongly concerned about information that questions their ingroup's functioning and integrity (Marques & Paez, 1994). We propose that cognitive information processing modes are triggered when the ingroup's position and image is threatened. Imagine an ingroup member performing an undesirable behavior, compared with an outgroup member. You would attend more closely to the performance of your group fellow, as the behavior displayed could also radiate onto you as you share a joint group membership. When your fellow's behavior does not confer with norms that are part of your ingroup's image, you will put strong cognitive effort into understanding the behavior and dealing with the

consequences. A typical reaction people show is a relatively strong expression of group protection, for instance, by devaluing the norm deviant (i.e., the black sheep effect, BSE, Marques & Yzerbyt, 1988). In contrast, information about outgroup deviants is not as central to one's social identity (see also Marques et al., 2001) and, consequently, outgroup deviants require less devaluation. The different importance of ingroup vs. outgroup deviance should be reflected by differences in how deeply people process the information about the deviant or the deviant act. Thus, adding to the prevalent, group-based motivational explanations of the BSE, the goal of the current research is to investigate an underlying, individual cognitive mechanism that determines reactions to norm deviance. Precisely, we aim to test whether group members do process information about an ingroup norm deviant more systematically than information about an outgroup norm deviant. We predict that these differences in information processing are an important determinant for how strongly people devalue such deviance, and thus affect the black sheep effect.

II.2. Group Membership and Information Processing

There is both theoretical reason (Chen & Chaiken, 1999) and empirical evidence (Mackie & Worth, 1989; Mackie, Worth, & Asuncion, 1990) to assume that information about norm deviants is processed differently as a function of deviants' group membership. One model upon which investigations of ingroup focused information processing can be based is the Heuristic-Systematic Model (HSM, Chaiken, Liberman, & Eagly, 1989; Chen, & Chaiken, 1999). It claims that judgments about social stimuli are determined by two basic processing modes. *Systematic processing* refers to a relatively analytic and elaborate treatment of judgment-relevant information. It occurs when people carefully consider information and its possible connections to prior knowledge. In contrast, less careful reasoning and superficial scanning of information mainly characterize *heuristic processing*. Following Chen and Chaiken (1999; see also Chen et al., 1989), systematic processing is most likely to occur when people are motivated and have cognitive resources available. Heuristic processing, on the other hand, is prominent when these conditions are not met.

As an ingroup is of high relevance to its group members, our rationale is that information about an ingroup norm deviant should instigate a more systematic processing mode than an outgroup deviant, who is less relevant. Preliminary empirical

support for our reasoning can be found in work by Mackie and colleagues. For example, Mackie et al. (1990) found participants to be persuaded more effectively when persuasive messages came from an ingroup source, indicating deeper information processing. In another series of experiments, Mackie and Worth (1989) had participants read stories depicting positive or negative activities either involving an ingroup or an outgroup target. In a subsequent memory task, participants recalled more information about ingroup members than about outgroup members. Moreover, information about ingroup members performing negatively was better recalled than about those performing positively, indicating a processing advantage of negative ingroup information compared with positive ingroup information. For reactions to in- versus outgroup norm deviance, however, there is no evidence yet for the role of information processing modes.

II.3. Reactions to Intergroup Norm Deviance

The most influential line of research on in- and outgroup norm deviance has focused on the BSE, a phenomenon showing that motivational aspects (e.g., social identity concerns) play an important role when it comes to reactions to norm deviance. According to the BSE, deviant ingroup members are devaluated and punished more than outgroup members behaving in a similar way. Marques and colleagues (see Marques & Paez, 1994, for a review) demonstrated this effect, which was replicated in various intergroup contexts with a broad range of dependent variables (e.g., Bègue, 2001; Chekroun & Nugier, 2005; DeCremer & Vanbeselaere, 1999; Matthews & Dietz-Uhler, 1998; Marques et al., 2001; Oishi & Yoshida, 2002) and has been shown to be moderated by the extent of ingroup identification (Bègue, 2001; Branscombe, Wann, Noel, & Coleman, 1993; Coull, Yzerbyt, Castano, Paladino, & Leemans, 2001).

We propose that information about a norm deviant's group membership triggers a rather systematic (ingroup) or rather heuristic (outgroup) mode of processing that may precede the actual response towards a deviant. The BSE shows ingroup deviants are more strongly devalued than outgroup deviants. Thus, our rationale is the following: Information about an ingroup deviant, being highly relevant for one's social identity, is processed systematically, thus people show stronger levels of devaluation. In contrast, information about an outgroup deviant is less systematically processed and therefore elicits relatively less devaluation.

There is initial and indicative evidence for our proposed hypotheses, obtained by Coull et al. (2001). In their study, participants received information about either a favorable or unfavorable ingroup member while at the same time engaging in a secondary, cognitive task. Results revealed that highly identified ingroup members, in comparison with low identifiers, devoted more cognitive resources to the ingroup norm deviant: When confronted with the unfavorable ingroup member, highly identified participants devalued the norm deviant more strongly while performing worse in the secondary task, compared with their lowly identified fellows. Apparently, the highly identified participants in Coull et al.'s experiment engaged in systematic information processing, triggered by the negative ingroup member, which in turn drew away cognitive resources necessary for performing the secondary task.

II.4. Current research

In the current three experiments, we directly test the impact of a deviant's group membership on the depth of information processing, because we are convinced this is an important predictor for the differential devaluation of ingroup vs. outgroup members. In fact, we will show that these differences in information processing are an important factor determining the BSE. We thereby extend the motivational basis of explaining reactions to norm deviance by proposing a specific underlying cognitive process. Such an analysis is desirable given the strong interplay between motivational concerns and cognitive processes in intergroup behavior (e.g., Chaiken & Trope, 1999; Fiske & Neuberg, 1990; Leyens & Yzerbyt, 1992; Petty & Cacioppo, 1986; Stangor & Thompson, 2002).

To summarize, we hypothesize that the ingroup is of high relevance to its group members and should thus instigate a relatively systematic mode of information processing. An outgroup norm deviant, however, is less important for the ingroup's image and thus this deviance should be less systematically processed. We approached this question using an explicit (Experiment 1) and an implicit (Experiment 2) measure of information processing. With regard to the BSE, we assume that these differences in information processing are responsible for the emergence of the BSE. In the third experiment, we therefore manipulated participants' propensity to process systematically, providing initial evidence that the BSE is directly affected by how deeply people process information.

II.5. Experiment 1

In the following experiments, we used the intergroup context of East and West German university students, which has proven to be an important part of the respective student identities (Schmitt & Maes, 1998, 2002). The incident of norm deviance delineated a target person violating a formal (and for students highly important) social norm, describing a student who selfishly hid an important book in the library (for a similar manipulation, see Gollwitzer & Keller, 2009). Information processing was measured with a self-report measure. Participants' ingroup identification was assessed before participants received the norm deviance vignette. We predicted that information about an ingroup deviant is processed more systematically than information about an outgroup deviant, in particular among highly identified participants.

II.5.1. Method

Participants and Design

Participants were 24 East German students from the University of Jena (15 of them female, M_{age} = 21 years, SD_{age} = 2) who were randomly assigned to either the ingroup or the outgroup deviant condition.

Procedure

Participants took part in a study on "memory for social information" at separate desks in a laboratory setting. After signing informed consent, participants first received the measure of ingroup identification, ostensibly as part of a pre-test for an upcoming study. We measured ingroup identification with four items (e.g., "I identify with the East Germans"), using a 7-point Likert-scale (from 1 = "I strongly disagree" to 7 = "I strongly agree"). The items were averaged into a single identification score (α = .87).

Participants then received a gender-neutral norm deviance description of a person who hid an important book in the university library. As many students were in need of the book, an extensive search was started, which proved successful after strong efforts of the library's employees. Due to a personal note left in the book, the person who hid the book could be identified. Group membership was manipulated by either describing the deviant as coming from Weimar (East Germany, ingroup) or from Munich (West Germany, outgroup). Apart from the information about the deviant's origin, the descriptions were identical. Afterwards, participants received a questionnaire including

the measure of information processing. We adjusted a measure used by Neuwirth, Frederick, and Mayo (2002). Eight items were designed to reflect systematic (e.g., "I think about how strongly the information just presented relates to other situations I already experienced") and heuristic ("I usually only scan information like that presented before") processing. Participants responded to the items on 7-point Likert-scales (from 1 = "I strongly disagree" to 7 = "I strongly agree"). To assess the relative amount of systematic information processing, we computed a ratio score from the means of the systematic and heuristic processing items. Higher values indicate stronger relative systematic information processing. At the end, demographic data were collected and participants were thanked, paid, and debriefed.

II.5.2. Results

All analyses reported in the following experiments were conducted with $\alpha < .05$, one-tailed. As an indicator of the effect size, η^2_p is reported (Cohen, 1977). Preliminary analyses of Experiment 1 showed no main effects or interactions with participant gender (all *F*s < 1), so the data were collapsed across this factor. To test our main assumption that information about an ingroup deviant is processed more systematically than information about an outgroup deviant, the ratio score of information processing was submitted to an ANOVA. As expected, participants processed information about an ingroup deviant more systematically than an outgroup deviant ($M_{\text{ingroup}} = 1.64$, $SD = 0.68$, vs. $M_{\text{outgroup}} = 0.95$, $SD = .40$), $F(1, 22) = 8.73$, $\eta^2_p = .28$.

To test the effect of the deviant's group membership on information processing among high and low identifiers, we used a moderated multiple regression approach (Aiken & West, 1991). Group membership was coded with "ingroup" = 1 and "outgroup" = -1 while the identification score was centered (West, Aiken, & Krull, 1996). Group membership, identification, and their interaction were then simultaneously entered into the regression. The overall regression model was significant, $F(3, 20) = 4.30$, $R^2 = .39$. As predicted, there was an interaction between group membership and identification, $\beta = .34$, $t = 1.88$, accounting for a substantial amount of variance, $R^2 = .11$ (see Figure 1). To test whether the effect of the deviant's group membership was stronger among highly identified participants, simple slopes were computed. As predicted, the slope among highly identified participants (*SD* -1) was significant, $\beta = .87$, $t = 3.45$, indicating that among high identifiers, the deviant's group membership had a strong effect on

information processing. Among low-identifiers (*SD* +1), no such effect was detected, β = .18, t < 1. Identification alone did not affect information processing, β = .07, t < 1, whereas group membership did, β = .53, t = 2.97, replicating the main effect described above.

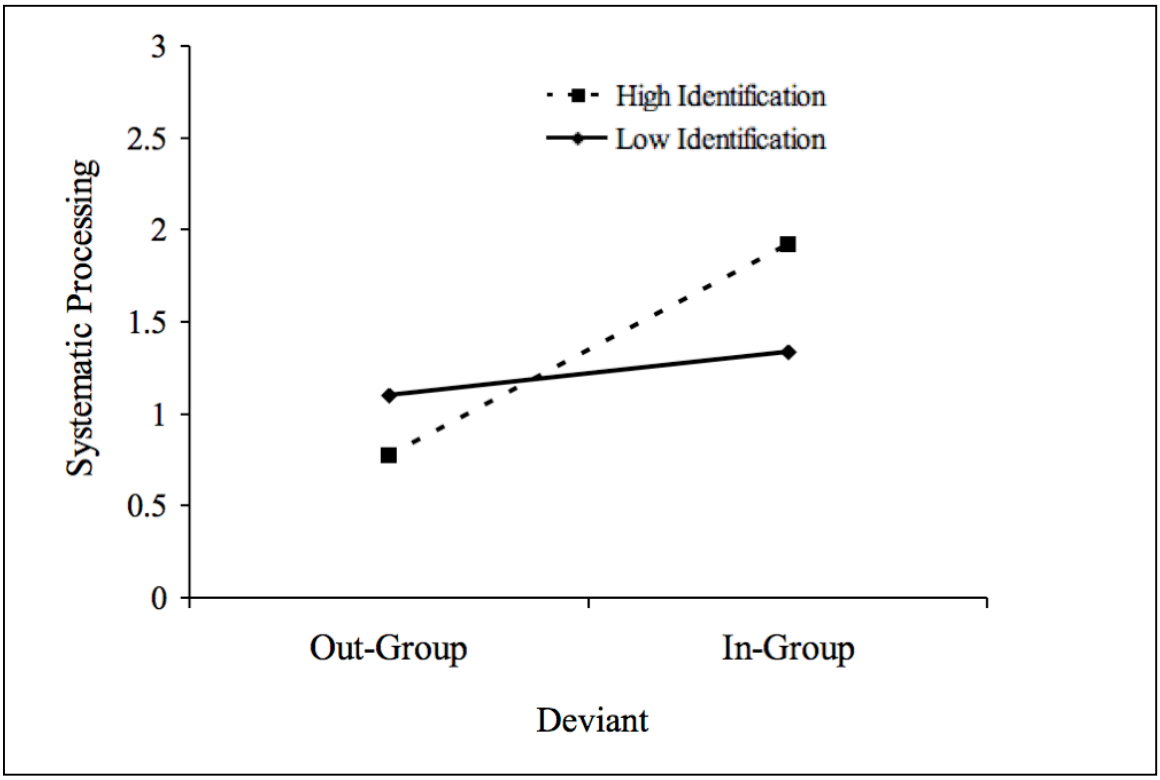

Figure 1. Experiment 1: Degree of self-reported systematic information processing as a function of group identification and deviant group membership. Higher values indicate increased systematic information processing.

II.5.3. Discussion

East German students indicated that they processed information about a deviant more systematically when the person originated from an East German as opposed to a West German town. As expected, this effect was driven by highly identified participants. Our results clarify the relation between deviant's group membership and information processing. Whereas Coull and colleagues (2001) found that high identifiers engaging with an ingroup deviant devoted less resources to a secondary task, we directly tested the effect of group membership and identification on information processing. High identifiers in particular drove the intergroup information processing effect.

The data provide evidence for our reasoning, so we sought further support, using a different measure of processing. In Experiment 1, we measured information

processing explicitly and "post-hoc"—participants themselves judged how deeply they processed the information read before. This measure could be affected by strategic concerns participants may have. They could have indicated stronger systematic processing not because the ingroup deviant actually triggered it, but to behave in an ingroup supporting way: Spending cognitive effort on an ingroup deviant could seem as more appropriate than "wasting" it on a less relevant outgroup deviant.

II.6. Experiment 2

Experiment 2 aimed to replicate the findings from Experiment 1 with a less obtrusive measure of information processing, ruling out strategic concerns participants could have had. We addressed this issue by drawing on findings from hemispheric activation related to cognitive processes.

Differences in hemispheric activation have been found in a variety of cognitive and emotional processes (Baumann, Kuhl, & Kazén, 2005; Levy, 1969; Metcalfe, Funnell, & Gazzaniga, 1995; Tompkins & Mateer, 1985). Most important here is that the left hemisphere seems to operate in a more analytical manner, taking into account relevant details of information presented. In contrast, the right hemisphere processes information more holistically, focusing on the overall configuration of information (Levy, 1969; Mildner, 2007). Transferred to the current context, the left hemisphere processes information in a rather systematic and analytic manner, whereas the right hemisphere processes in a rather heuristic manner. Drawing on our reasoning above, we expected to find that information about an ingroup deviant triggers stronger systematic information processing, thus gauging stronger left-hemispheric brain activation, compared with an outgroup member.

Experiment 1 showed the processing effect among male and female participants. Using a measure of hemispheric activation, different patterns of neural activation between men and women can be expected and have been found (Halpern, 2000; Kaplan, 2005). Precisely, among women, cognitive processes seem to rely less on the amplified activation of one correspondent hemisphere but on relatively equal use of both hemispheres (Claridge, Clark, & Beech, 2002; Cowan et al., 2000; Kulynych, 1994; Lindell & Lumb, 2008; Siegel-Hinson & McKeever, 2002). These findings indicate that a more pronounced effect of the deviant's group membership on hemispheric activation shift among male participants is possible, so participant gender should be taken into account

in the analyses.

In the current experiment, we manipulated the norm deviant's group membership analogously to Experiment 1, and then relative hemispheric activation was gauged using a line-bisection task (Friedman & Förster, 2005; Milner, Brechmann, & Pagliarini, 1992). In this task, participants receive a series of centrally bisected lines and are asked to indicate which segment of the line is longer. In this forced-choice variant, a leftward bias (i.e., the tendency to view the left line as being longer) reflects stronger right-hemispheric activation. A leftward bias thus indicates a rather heuristic mode of information processing compared to a rightward bias. We predicted a stronger shift towards left-hemispheric (i.e., rightward bias) processing after presentation of ingroup as opposed to outgroup deviance, that is possibly more pronounced among men (see Kaplan, 2005).

II.6.1. Method

Participants and Design

Participants were 94 East German students from the University of Jena (44 female, 50 male, M_{age} = 23 years, SD_{age} = 3). They were randomly assigned either to the ingroup or the outgroup deviance condition. With gender treated as an additional factor, a 2 (Deviant: Ingroup vs. outgroup) x 2 (Gender: Female vs. male) between-subjects design resulted with participants being equally distributed across the cells.

Procedure

Participants were seated in individual cubicles and welcomed to a study on "social information processing and distraction". They signed informed consent forms and filled in the measure of identification used in Experiment 1 (α = .91) before the experimenter started the experiment on the computer. The experiment began with a baseline measure of the line-bisection task. Participants were instructed that in the following, a series of bisected lines would be presented on the computer screen. These lines were white displayed on a black background, and measured 20 cm in length. Participants were asked to decide as quickly and accurately as possible whether the left or the right section of the line was longer, using the corresponding ctrl-keys on the keyboard. All in all, 54 bisected lines were serially presented in a random order. Eighteen lines were critical targets, bisected in the centre of the line. Another 36 lines

were either bisected towards the right or the left side of the line. After completion of this task, the norm deviance vignette used in Experiment 1 was presented. Once participants had finished reading, the second part of the line-bisection task followed. Again, the same 54 bisected lines as before were presented serially in a random order. Subsequently, demographic data were collected before participants were paid, thanked and debriefed.

II.6.2. Results

Overall, participants showed a leftward bias both in the baseline measure (M = -.17), and after the manipulation (M = -.24), indicating that, as a general tendency, they processed relatively right-hemispheric or heuristically. To test our hypothesis that ingroup deviance information is processed more systematically relative to outgroup deviance information, we computed an ANCOVA on the line-bisection score (post manipulation) with deviant and gender as independent variables and line-bisection performance before the manipulation as covariate. Performance before the manipulation was used in order to control for individual differences before the manipulation. Before analyzing our pre-test/post-test data we tested the assumption of homogeneity of regression (cf. Hutchison, Abrams, Gutierrez, & Viki, 2008). This is the assumption that the slopes of the regression of the dependent variable on the covariate (pre-deviance line-bisection performance) are the same for all combinations of the independent variables (Deviant and Gender). If the covariate does not interact with the independent variables, then the assumption has not been violated. None of the interactions involving pre-deviance line-bisection performance were significant, all ts < 1. The ANCOVA showed that the covariate explained a significant amount of variance, $F(1, 89) = 80.04$, $\eta^2_p = .47$.

We found the expected interaction between deviant and gender, $F(1, 89) = 3.35$, $\eta^2_p = .04$ (see Figure 2; for the main effects, both Fs < 2, *ns*).

Simple main effect tests revealed that among men, relative hemispheric activation shifted from rightward for the outgroup deviant (M = -0.28, SE = .09) towards leftward for the ingroup deviant (M = -0.11, SE = .09), $F(1,64) = 4.15$, $\eta^2_p = .05$, indicating a shift from rather heuristic to relatively more systematic processing. Among women, no such effect was found, $F < 1$. As further simple main effects tests showed, men only differed from women with regard to the ingroup (M = -0.11, SE = .09 vs. M = -0.31, SE = .09), $F(1, 64) = 5.26$, $\eta^2_p = .06$, but not with regard to the outgroup deviant, $F < 1$. In this

experiment, identification did not interact with any of the independent variables, $F < 1$.

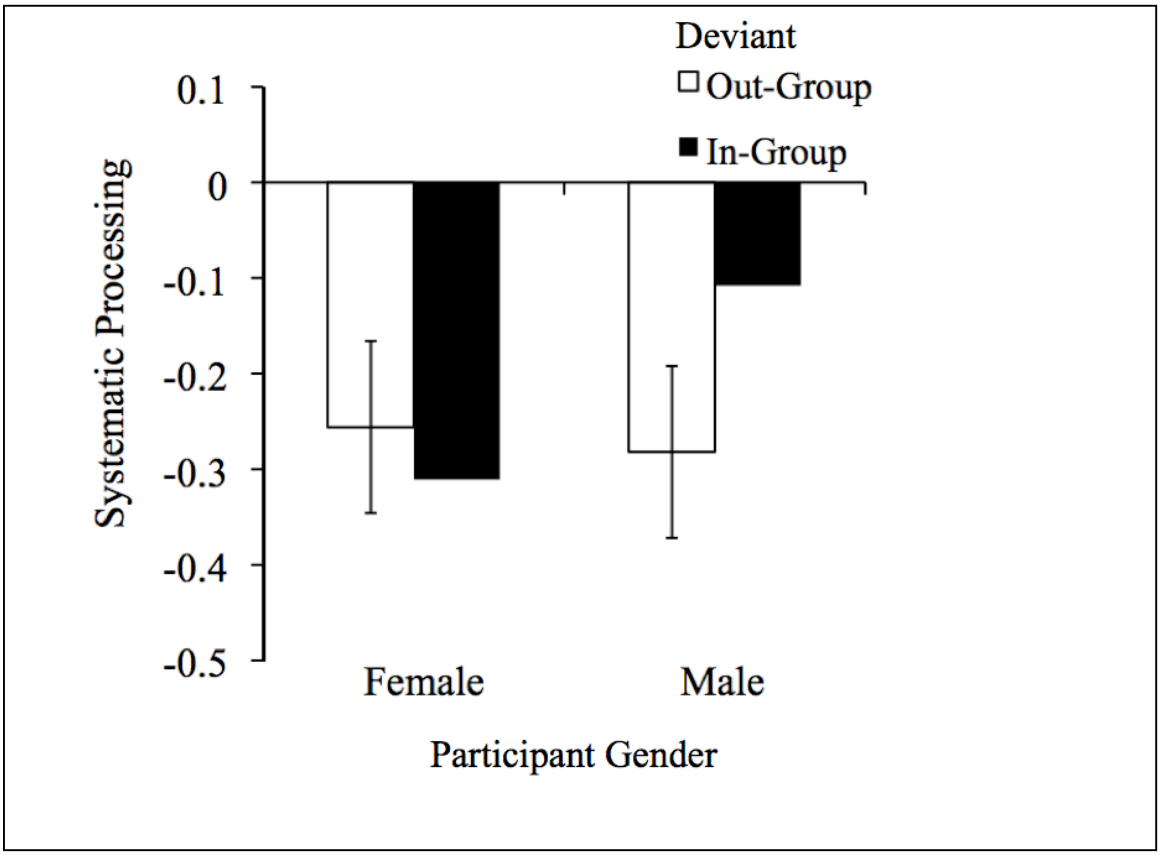

Figure 2. Experiment 2: Degree of systematic information processing as indicated by relative hemispheric activation as a function of deviant group membership and participant gender. Lower values indicate stronger left-hemispheric activation/weaker systematic information processing.

II.6.3. Discussion

Using a measure of relative hemispheric activation we showed that male participants in line with our hypothesis processed ingroup deviance information more systematically than information about outgroup deviance, indicated by a shift towards a rightward bias when participants were confronted with ingroup deviance. Female participants showed a leftward bias in the line-bisection task independently of deviant's group membership. As the baseline of the line-bisection task revealed, participants showed an overall leftward bias, indicating relative activation of the right hemisphere and relatively heuristic processing. Thus, the relative shift of hemispheric activation towards the left side constitutes the important effect.

Identification moderated the effect in Experiment 1, but not in Experiment 2. Most likely, the computer-performed line-bisection task was not sensitive enough to

detect differences based on participants' ingroup identification. Neurophysiologic measures that have been introduced to assess neural underpinnings of intra- and intergroup behavior (e.g., Derks, Inzlicht, & Kang, 2008) could be a fruitful future instrument to tap into these processes.

The gender effect reflects prior findings on differential cognitive processes between men and women (e.g., Kaplan, 2005). Yet, we do not conclude from this finding that men in general are more sensitive to norm deviance or process more systematically. The line-bisection task thus could be an appropriate task for men, given their stronger lateralization, whereas the decreased lateralization in women in general may have overshadowed effects on information processing. As has been shown in Experiment 1, this influence of group membership on information processing exists.

II.7. Experiment 3

In two experiments, converging evidence was found that information about ingroup deviants, in comparison with outgroup deviants, is processed more systematically. If these differences in information processing affect the BSE, as we assume, we should be able to show that in Experiment 3. More precisely, if we trigger systematic processing, both ingroup and outgroup information are processed systematically, thus eliminating the BSE. Therefore, we aimed to activate a deeper and more elaborated mode of information processing before confronting participants with the deviance.

We manipulated participants' propensity to process systematically using two different ways. One way to trigger systematic processing was implemented by putting participants into a creativity mindset. Being creative has been defined as an attempt or mode of thinking that avoids conventional routes of thinking (Sassenberg & Moskowitz, 2005). It includes the use of unusual and different connections of knowledge (Förster, Friedman, Butterbach, & Sassenberg, 2005; see also Förster & Higgins, 2005) and thus reflects a broadened, extensive mode of thinking. As a proxy of increased systematic information processing, we therefore deem creative thinking an appropriate means to manipulate how strongly people process information. In order to strengthen the validity of the current experiment, we also implemented a second way to trigger systematic processing. We put participants into a precision mindset. Given that being precise includes most characteristics that define systematic processing (e.g., careful processing

and consideration, scrutiny, analytic reasoning), we expected this mindset to enable participants to process subsequent information systematically. Using two rather distinct ways to trigger systematic processing, we aimed to show that a general systematic processing mode is responsible for changes in deviant devaluation. Following the typical BSE paradigm, we then confronted participants with an ingroup or an outgroup norm deviant and measured devaluation afterwards.

As described above, we assumed that increased information processing, as elicited by an ingroup deviant, should lead to higher levels of devaluation. As information about an outgroup deviant is less systematically processed, devaluation should be weaker. Therefore, we expected a BSE only in the no-processing condition, in which ingroup deviance is processed more systematically than outgroup deviance. However, if stronger systematic information processing is indeed related to stronger devaluation, we should also find increased devaluation of an outgroup deviant when participants are encouraged to process systematically. In other words, after the induction of creativity or precision, the black sheep effect should not show.

II.7.1. Method

Participants and Design

Participants were 296 students from the University of Jena; 247 students from East Germany (143 female, M_{age} = 22, SD = 3) were included in the analysis, randomly assigned to either the ingroup or the outgroup condition while either receiving none or one of the two systematic processing manipulations. This resulted in a 2(Deviant: Ingroup vs. outgroup) x 3(Systematic processing: no-processing vs. creativity vs. precision) between-subjects design.

Procedure

Participants took part in the study in groups of up to 12 in a laboratory setting. They were seated at separate tables and received both written and oral instructions from the experimenters. The experiment was presented as a set of unrelated studies. Therefore, each part of the experiment was put on separate sheets of paper. First, participants received the measure of ingroup identification used in the previous experiments (α = .82). Participants in the no-processing condition subsequently received the situation description including the group membership manipulation. This

manipulation was identical to the ones used in Experiments 1 and 2. Participants in the creativity and precision conditions received the mindset manipulation first, following the operationalization by Sassenberg and Moskowitz (2005). In the creativity condition participants were asked to think deeply about creativity and describe up to three situations in which they had been creative. Analogously, in the precision condition, participants were asked to think deeply about precision and describe up to three situations in which they had been precise. After completion of this task, participants in these two conditions also received the situation description.

Following the group membership manipulation, we measured devaluation using a 4-item measure (e.g., "The person described should be held accountable for their behavior", "The person displayed in the situation just doesn't behave properly": α = .69). Participants responded to the items on 7-point Likert-scales (from 1 = "I strongly disagree" to 7 = "I strongly agree"). At the end of the experiment, participants gave demographic information, were debriefed, thanked and compensated for their participation.

II.7.2. Results

Preliminary analyses of Experiment 3 showed no interactions of our independent variables with participant gender (all *F*s < 1), so the data were collapsed across this factor. There were also no interactions with ingroup identification, all *F*s < 1.51, all *p*s>.22.

We predicted that only in the no-processing condition, a black sheep effect would emerge. In the creativity and precision conditions, we expected this effect to be eliminated, due to increased devaluation of the outgroup deviant. In order to test this focused hypothesis with the most statistical power possible, we conducted a contrast analysis (Rosenthal & Rosenow, 1991), predicting that outgroup devaluation in the no-processing condition is significantly lower than ingroup and outgroup devaluation in any other condition (see Figure 3). The contrast weights were as follows: Outgroup/no-processing (+5), ingroup/no-processing (-1), outgroup/creativity (-1), ingroup/creativity (-1), outgroup/precision (-1), ingroup/precision (-1). This contrast was significant, $F(1, 241) = 9.04$, $\eta^2_p = .04$. Additionally, the residual sum of squares was non-significant, $F = 1.57$. As can be seen in Figure 3, in the no-processing condition, participants judged the outgroup member more positively ($M = 4.58$, $SD = 1.29$) than the

ingroup member (M = 5.39, SD = 1.18).

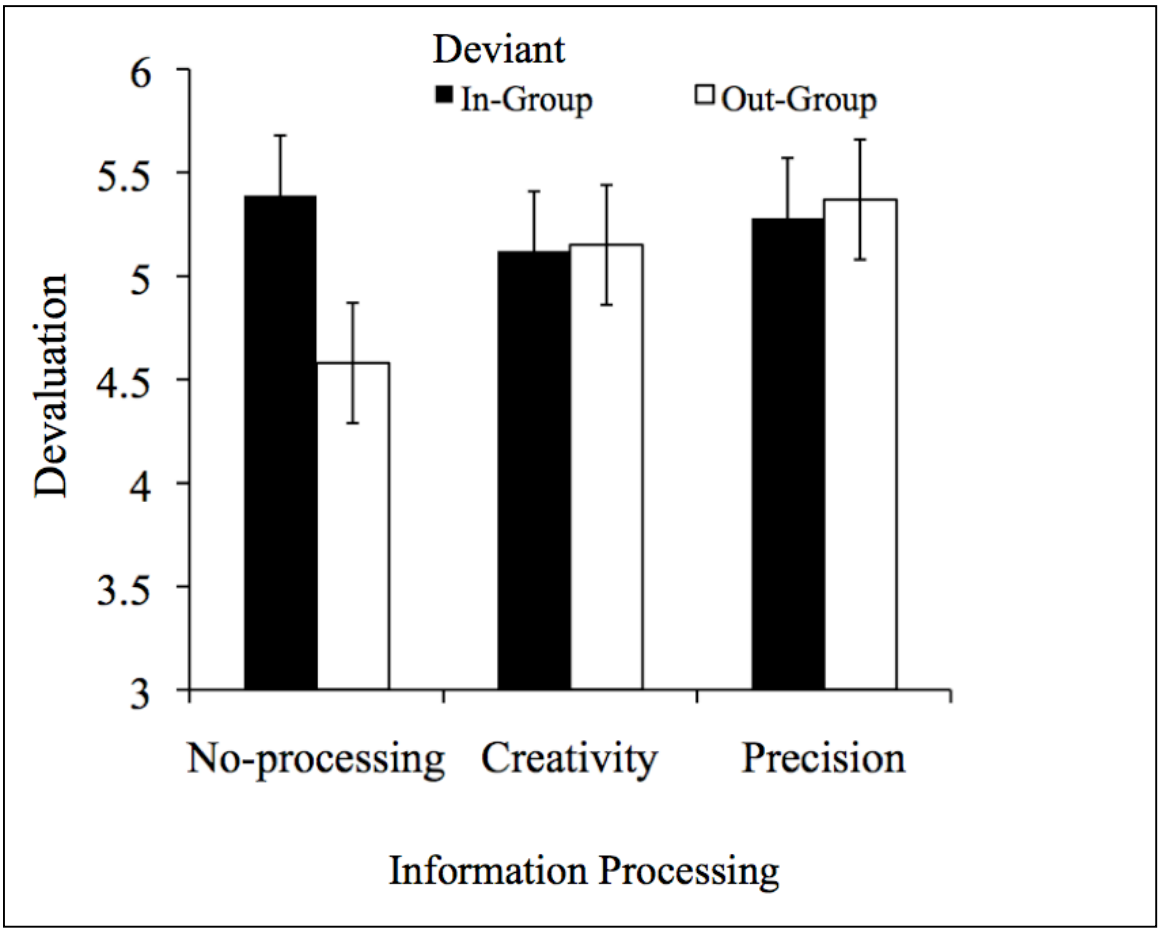

Figure 3. Experiment 3: Degree of devaluation as a function of group membership and information processing. Higher values indicate stronger devaluation.

This simple main effect was significant, $F(1, 241) = 8.01$, $\eta^2_p = .03$, representing the BSE. In both systematic processing conditions, however, the BSE was eliminated due to increased outgroup devaluation, $F(2, 241) = 3.97$, $\eta^2_p = .03$. Post-hoc tests revealed that devaluation of an outgroup deviant was significantly higher both in the creativity condition (M = 5.15, SD = 1.51) and the precision condition (M = 5.37, SD = 1.01), in comparison with the no-processing condition. Systematic processing, however, did not affect devaluation of an ingroup deviant, $F < 1$ ($M_{creativity}$ = 5.12, SD = 1.35, and $M_{precision}$ = 5.28, SD = 1.30). Put differently, under systematic processing deviant ingroup and outgroup members are devalued in a similar manner.

II.7.3. Discussion

We found participants' propensity to devalue an outgroup norm deviant increased when systematic information processing was triggered. Regardless of whether

participants were asked to think about creativity or precision, devaluation of an outgroup norm deviant increased to the same level as for ingroup deviants. The rating of the ingroup deviant, in contrast, was not affected by the manipulation—the systematic processing manipulation did not affect information that is per se processed systematically (see Experiments 1 and 2). By combining assumptions from theorizing on the determinants of information processing (e.g., Chen & Chaiken, 1999) and approaches explaining the BSE (e.g., Marques & Paez, 1994), this experiment shows that the amount of systematic processing elicited determines how strongly a deviant is devaluated. Thus, motivational concerns alone may not suffice to determine how people react to norm deviance.

II.8. General Discussion

Three experiments provide evidence for our hypothesis that information processing differences underlie the BSE, namely, that ingroup and outgroup deviants are processed differentially and therefore elicit different degrees of devaluation. In the first experiment, participants retrospectively assessed their mode of information processing as being more systematic when they read about an ingroup compared with an outgroup deviant, in particular when they were highly identified with their ingroup. In the second experiment, using a more unobtrusive measure of information processing, we expected a stronger rightward bias on a hemispheric activation measure, and thus found a shift towards a rightward bias, indicating increased relative left-hemispheric activation and relatively more systematic processing in the ingroup deviant-condition. In the third experiment, that assessed a devaluation measure typical for the classic BSE, we manipulated information processing by activating two distinct mindsets. While a BSE emerged in the no-processing condition, it disappeared when systematic processing was triggered before participants were confronted with the deviant. In detail, devaluation of the outgroup deviant increased to the level of the ingroup deviant devaluation. The overall pattern of the current experiments thus reveals that group membership of a deviant guides which mode of information processing is likely to occur, and shows reactions to norm deviance being affected by these differences in information processing.

We want to point to some caveats of the current research. First, the second experiment does only provide evidence for our reasoning with regard to male

participants. Although this does not question the overall picture of deviant processing as a function of group membership, it somewhat weakens the generality of the findings we gained in Experiment 1.

Second, one might object on whether the hemispheric activation shifted to the left hemisphere. In absolute figures, this may be questioned, but we want to highlight that the expected relative shift is of importance. Given the initial leftward bias in the sample, the diminished relative right hemispheric activation we found among male participants in the ingroup-deviant condition reflects a shift towards left hemispheric activation (Friedmann & Förster, 2005).

Finally, the role of ingroup identification is, if anything, unclear. Although we found supportive evidence for our reasoning in Experiment 1, ingroup identification did neither affect hemispheric activation in Experiment 2, nor devaluation in Experiment 3. Still, we found participants to be highly identified in all experiments. Together with the interaction found in Experiment 1, this suggests that high identification facilitates systematic processing of ingroup deviant information and devaluative responses.

With our hypotheses confirmed, we extend theorizing on the BSE by an important process component. As we have shown, information about the deviant's group membership triggers differential patterns of information processing that in turn can be counteracted by directly manipulating processing capacities. So, it is not motivational concerns per se that directly lead to differential punitive behavior, but the extent of cognitive capacity that is invested in processing the deviant's behavior. An alteration of these capacities affected the response towards outgroup deviants. In fact, our findings strengthen the notion that an analysis of cognitive processes is necessary to explain the BSE. Findings on the impact of expectancy violation (Biernat, Vescio, & Billings, 1999) and personal, associative proximity to the deviant (Eidelman & Biernat, 2003) on the BSE also point to this notion.

Our findings strongly support predictions of the HSM that important or relevant information instigates systematic processing. Given previous processing research in an intergroup context (Mackie and Worth, 1989; Mackie et al., 1990), one might argue that such differences could also occur when the ingroup's image is not threatened. However, based on the fact that the BSE does not emerge when group members are confronted with positive and neutral group members (Marques & Yzerbyt, 1988; Marques et al., 1988), or even positively deviating group members (Marques et al., 2001), an analysis of

non- (or positively-) deviating in- and outgroup members might not add further insight into the processing—devaluation link we focus on.

We posit that the concerns about social identity—or, in other words, the relevance of the ingroup—are responsible for the elevated systematic processing and devaluation of ingroup compared with outgroup deviants. Initial evidence for that was found recently (Reese, Jonas, & Steffens, 2010). We showed that ingroup deviants were devalued less when participants were put under cognitive load (i.e., decreased systematic processing) while being confronted with ingroup norm deviants. That is, when systematic processing was hindered, instead of increased as in the current Experiment 3, the negative information and consequences of the ingroup deviant were less deeply elaborated, leading to less devaluative strategies to maintain ingroup positivity. The current results thus complement these findings, showing that an increase in systematic processing affects devaluation when systematic processing previously was low.

Our results connect to prior findings on information processing of group membership (e.g., Mackie et al. 1990) and have implications for research on how individuals respond to norm deviance. First and foremost, we demonstrate that the extent of information processing, triggered by information about a deviant's group membership, determines how people react to deviant behavior. In fact, prior findings on the relation of elaborate thinking and devaluation need to be refined on the basis of the current results. For example, Sargent (2004; see also Tam, Leung, & Chiu, 2008) showed that the more people engaged in elaborate thinking, the less severe were their attitudes towards punishment. These authors focused on stable dispositions and general attitudes instead of context dependent evaluation of single norm deviants. Oswald and Stucki (2009) presented a model that describes punitive judgments as a function of the seriousness of the norm violation and a more elaborated, secondary justification process. In their studies, participants under cognitive load (i.e. processing rather heuristically) showed stronger punishment tendencies than participants being able to process systematically. As our findings show, taking social identity concerns into account, this relation seems to shift. In particular, the question of whether the BSE depends on how deeply people elaborate in- vs. outgroup information, can be approached with the current analysis. When an ingroup member behaves badly, systematic processing is triggered, which includes thoughts and inferences about the

(negative) consequences for the group and one's own social identity. The more these thoughts are taken into account, the stronger the need to protect the group by devaluing or punishing the norm deviant (Marques & Paez, 1994). In this manner, the mode of information processing is the procedural link between the deviant's group membership and the extent of devaluation. Coull et al.`s findings (2001) also pointed to such a process. In their study, high identifiers put strong cognitive effort into processing the ingroup information that in turn was associated with stronger devaluation. With our analysis, including an outgroup member in the processing analysis, a more comprehensive picture of which information processing modes underlie the reaction to ingroup norm deviants has been revealed. In fact, we delivered the first demonstration that an increase in systematic processing leads to stronger devaluation of deviants.

We believe that one way to further this analysis has been introduced in Experiment 2. We used a measure of hemispheric activation to assess differential modes of processing in response to a deviant's group membership. Although we found our principal hypothesis confirmed only among men, this pattern of hemispheric activation suggests that neural activation patterns can advance the understanding of intergroup phenomena (Derks et al., 2008). In fact, we assume that research on both the BSE and more "conventional" ways of intergroup differentiation (e.g., ingroup bias) can substantially benefit from such methods. A study reported by Derks and colleagues revealed that the activation of negative ingroup stereotypes (i.e., threat to the group's image) elicited different patterns of event-related potentials (ERPs) than the activation of positive ingroup stereotypes. Precisely, a negative ingroup stereotype elicited an increased late positive potential (LPP), which is supposed to reflect negative evaluations. With regard to the BSE, such a measure should also reveal increased LPP when an ingroup compared with an outgroup deviant is presented, accompanied by increased left-hemispheric activation. Thus, measures of neural activation may serve as unobtrusive tools to analyze automatic reactions to ingroup-relevant behaviors (see also Damasio, 1998; Milne & Grafman, 2001).

To conclude, we are confident that we introduced an important cognitive factor for understanding how and why people respond to acts of norm deviance. In particular, we think that the black sheep effect is directly affected by the differential modes of information processing that in- and outgroup deviants elicit. However, as the BSE represents a sophisticated form of ingroup bias, it seems both logical and necessary to

address the question of whether changes in information processing also account for more general effects of intergroup differentiation, including ingroup bias, discrimination and prejudice.

II.9. Discussion – Outlook

In addition to the points discussed, there are some other issues of the current series of experiments that deserve comment and further elaboration. These issues deal with the measure and conceptualization of the hemispheric activation measure, ego-depletion, the relation to social justice research and some methodological concerns, and will be treated in the Overall Discussion of the current dissertation. Taken together, the current chapter provides evidence for the reasoning that the BSE is based on different modes of information processing. Ingroup and outgroup deviance are processed in different ways, and these differences in information processing seem to determine how strongly or negatively people react towards norm deviance. We have discussed these results in light of theorizing on the BSE, and provided implications for related fields of research. A direct test of whether processing of ingroup deviance is responsible for the extent of ingroup deviant devaluation has not yet been undertaken. Thus, in the following chapters, we will built up on the current results, with a stronger focus on how information processing affects reactions to ingroup deviants.

Chapter III – On The Relation Between Ingroup Deviance and Depth of Information Processing

III.1. Introduction

Three experiments described in Chapter II revealed that information about an ingroup deviant is processed more systematically than comparable information about an outgroup deviant. We found evidence that these differences in information processing determine the extent of deviant devaluation. An ingroup deviant, being processed more systematically, was judged more negatively than an outgroup deviant, being processed less systematically. However, when systematic information processing was triggered and participants were confronted with an outgroup deviant, devaluation of the outgroup deviant increased. These results clearly support our notion that the mode of information processing determines how individuals respond to deviant group members, but lack a direct test of the proposed relation between processing depth and devaluation of ingroup deviants. In the previous chapter, we argued that the difference in information processing is primarily based on the motivational concerns that go together with information about ingroup deviance information. Following the logic of SIT (Tajfel & Turner, 1986) and the findings obtained by Coull and colleagues (2001), we discussed in Chapter II that increased systematic processing of ingroup deviance may relate to stronger means of group protection or restoration (Marques & Paez, 1994).

As this link has only been touched in the preceding chapter, we pick it up in the current chapter. We argued before that the increase in systematic information processing via creativity and precision mindsets did not operate additively in case of an ingroup deviant. At least, no supporting evidence was found that it did. Therefore, a direct test of the link between concerns about the ingroup and the extent of devaluation will be described in the following. First, we present a pretest that aimed to clarify the relation between depth of information processing and devaluation of an ingroup

deviant. Using only an ingroup deviant, we thus sought correlational evidence for our assumption that increased information processing of ingroup deviance relates positively to increased devaluation. In Chapter IV, we will build up on this pretest, manipulating information processing and group membership of the deviant.

III.2. A Pretest on the Relation Between Systematic Processing and Devaluation of an Ingroup Deviant

In order to initially test the viability of our argumentation, we gave participants three separate situation descriptions. In each of the situations, an ingroup member behaved in an unfavorable way, followed by measures of devaluation and information processing. The hypotheses were straightforward: We predicted that the more systematically participants process ingroup deviant information, the more strongly they devalue the deviant. In line with prior findings (Coull et al., 2001), we also expected that the ingroup deviant would be devalued more strongly the higher participants identified with the ingroup. Analogously, and drawing from the results of Experiment 1 in the previous chapter, we expected that increased identification covaried positively with systematic processing.

III.2.1. Method

Participants and Procedure

Participants were 25 students (18 female, M_{age}= 22 years, SD = 2) from the University of Jena who participated voluntarily in exchange for a chocolate bar. They were invited to take part in a study on "memory of social information". The experiment was conducted in a laboratory and was controlled by experimental computer software (DirectRT, v2008). After signing informed consent, participants received information about the nature of the experiment on screen. The experiment consisted of three separate parts. In each part, participants received the description of a norm deviance situation. Each description included a norm deviant being described as coming from the University of Jena. The information about category membership was always given at the beginning of the descriptions. In part *a*, a student disrupted a lecture by climbing to the front and humiliating the lecturer. In part *b*, a student was described as reacting violently at a student's demonstration. In part *c*, a student was described hiding an important book in the university's library (for the complete descriptions, please refer to

Appendix 1). The situations used in the several parts were of equal length and pre-tested for their plausibility and credibility. Within each part, participants judged the norm deviant using an eleven-item devaluation scale. Items included punitive reactions towards the deviant (e.g., "The person should be punished for their behavior") as well as more general reactions towards the deviant (e.g., "The person described just doesn't behave in a proper way", "The person described should be ashamed of their behavior"). Each item was presented on a 7-point Likert scale (from 1 = "I strongly disagree" to 7 = "I strongly agree"). Participants' responses were collapsed across all situations and averaged to form a composite measure of devaluation (α = .88).

Subsequently, information processing was measured, using the items applied in Experiment II.1[3], and both the systematic as well as the heuristic subscale were reliable (both αs = .87). Analogously, a ratio score was computed to assess the relative amount of systematic information processing, collapsed across all situations. After completion of the three parts, demographic data were collected before participants were thanked, debriefed and compensated for their participation.

III.2.2. Results

Given the directed hypotheses, the analyses reported in the following were conducted with $\alpha < .05$, one-tailed. As predicted, systematic information processing was positively related to devaluation of the norm deviant collapsing across three situations. The higher participants indicated that they processed the information systematically, the stronger the devaluation of the deviant, $r(25) = .41$.

With regard to identification, we found that participants were highly identified with their ingroup ($M = 4.96$, $SD = 1.07$), $t(24) = 4.50$, indicating that group membership was relevant to participants (center scale = 4). The higher participants were identified with their ingroup, the stronger the devaluation of the deviant, $r(25) = .42$. The relationship between information processing and ingroup identification was descriptively substantial, $r(25) = .29$, but fell short of significance, $p = .08$.

To test the relation between information processing and devaluation among high and low identifiers, we used a moderated multiple regression approach analogous to

[3] In fact, the order of the measures is problematic, because it is possible that the devaluation of the deviant act affects the self-reported extent of information processing. Please do also refer to the discussion of the current study.

Experiment II.1. Information processing, identification, and their interaction were then simultaneously entered into the regression. The overall regression model was significant, $F(3, 21) = 3.08$, $R^2 = .31$. Both information processing ($ß = .37$, $t = 1.88$) and ingroup identification ($ß = .38$, $t = 1.93$) predicted devaluation of the ingroup deviant. The interaction, however, was not significant, $ß = -.20$, $t = -1$.

III.2.3. Discussion

The present pretest tested the assumption that systematic information processing predicts stronger devaluation of a norm deviant, using three different situation descriptions with varying descriptions of norm deviance. Testing our hypothesis across all situations revealed that, when an ingroup deviant is presented, systematic information processing predicts punitive responses. Moreover, being in line with the findings by Coull and colleagues (2001) and others (Bègue, 2001; Branscombe et al., 1993), increased ingroup identification related to stronger devaluation scores. The current results are important, as they directly show that increased systematic processing relates to stronger devaluation.

Yet, the scope of the current pretest is limited, and should be interpreted with care. One major problem of the current study is the order of measures presented to participants. We did not counterbalance whether participants first received the measure of devaluation or the measure of information processing. A second condition would be appropriate that asks participants first about their processing depth, followed by the devaluation measure. Thus, we cannot conclude that the measure of information processing tapped how deeply participants processed the information without being affected by the extent of devaluation. In fact, it is possible that devaluation affects the extent of information processing. This points to the second methodological problem of the current study. As we were primarily interested in the relation between devaluation of an ingroup deviant and information processing, we used a correlational design. This, of course, does not provide evidence for the causal relationship between information processing and devaluation of deviants. We address this issue in particular in the subsequent chapter (Experiments 2 and 3), where we manipulate individuals' mode of information processing while reading about a deviant act.

Furthermore, the current results do not allow conclusions about whether this link is unique to an ingroup deviant, as we did not administer an outgroup in the study's

design. Nonetheless, the fact that ingroup identification also related to information processing (though only descriptively) suggests that categorization of the deviant as an ingroup member indeed played a role for the link between processing and devaluation of the ingroup deviant. The following chapter will address this issue more clearly, assessing reaction to and processing of outgroup deviants as well. Moreover, we will also focus on whether the mere associative proximity of a deviant to one's group elicits punitive reactions (see Jonas, 2009). Finally, the current results only hold on the basis of aggregating across all three subparts. We did not vary the order of the presentation of the deviant acts, thus we are unable to investigate any carry over effects from one situation to another. Therefore, an aggregate score for devaluation and processing appeared appropriate. For the sake of completeness, however, Table 1 shows the relation between the three variables we focus on here for the individual parts. As can be seen, all correlation coefficients point into the expected direction. Yet, the relation found significant across all three situation descriptions differs in its extent from one situation to the other.

Table 1. Pretest: Bivariate correlations between devaluation, information processing and ingroup identification within each of the pretests' subparts.

	Dev	Proc	IG-Id
Devaluation	1	.06	.54*
Processing		1	.14
In-Group Identification			1

Table 1a

	Dev	Proc	IG-Id
Devaluation	1	.31+	.16
Processing		1	.17
In-Group Identification			1

Table 1b

	Dev	Proc	IG-Id
Devaluation	1	.31+	.41*
Processing		1	.37*
In-Group Identification			1

Table 1c

Note: $*p < .05$, $+p < .10$.

Thus, although the current study suffers from methodological weaknesses, the finding represents a first empirical step towards the explanation of intragroup norm deviance from an information processing perspective. This explanation and the discussion of the importance of this perspective are sought in the following chapter.

Chapter IV – Think or Not Before You Punish: Information Processing Depth Moderates the Black Sheep Effect

In Chapter II, we have tested the idea that ingroup deviance in contrast to outgroup deviance is processed more systematically, and that these differences in information processing determine the BSE. Chapter III built up on these studies, and provided first but inconclusive evidence that the relation between ingroup deviant devaluation and information processing exists. In the following chapter, we will turn towards a more fine-grained analysis of the underlying cognitive processes determining the BSE.

IV.1. Introduction

Although people show a general tendency to favor their ingroups (e.g., Brewer, 1979; Mullen, Brown, & Edwards, 1992), ingroup members are not invariably judged more positively than members from outgroups. As individuals are highly concerned about their group and its norms, any kind of behavior that questions the group should lead to responses that aim to protect the group's norms, or restore what has already been damaged. Indeed, research on the black sheep effect (BSE, Marques & Yzerbyt, 1988; Marques, Yzerbyt, & Leyens, 1988; see Marques & Paez, 1994, for a review) has shown that deviant ingroup members are punished harder or are devalued more than identical outgroup members. In other words, when group members one shares a common identity with behave in a way that does not confer to ingroup norms, the group is inclined to react with direct means to restore the ingroup's norms (Castano, Yzerbyt, Bourguignon, & Seron, 2002; Hutchison, Abrams, Gutierrez, & Viki, 2008). Apparently, the harsher devaluation of such ingroup deviants results from a motivational strategy in service of group protection (Branscombe, Wann, Noel, & Coleman, 1993; Coull, Yzerbyt, Castano, Paladino, & Leemans, 2001; Marques & Paez, 1994). The effect has been shown using a variety of intergroup contexts and measures (Bègue, 2001; Chekroun & Nugier,

2005; DeCremer & Vanbeselaere, 1999; Khan & Lambert, 1998; Matthews & Dietz-Uhler, 1998; Marques, Abrams, Paez, & Martinez-Taboada, 1998; Marques, Abrams, & Seridio, 2001; Marques & Paez, 1994; Nugier, Chekroun, Pierre, & Niedenthal, 2009; Oishi & Yoshida, 2002). This group-based, motivational explanation has been extended by an expectancy violation explanation (Biernat, Vescio, & Billings, 1999) and an explanation that individuals do not want to be associated with a deviant other (Eidelman & Biernat, 2003; see also Jonas, 2009). This suggests that apart from primarily motivational concerns, cognitive processing mechanisms, such as associative proximity, underlie the BSE as well. Taking a motivated cognition perspective (Chen, Duckworth, & Chaiken, 1999; Dunning, 1999; Kunda, 1990; Kunda & Sinclair, 1999; Taylor & Hardin, 1999), we propose that in BSE studies, information about the group membership of a norm deviant triggers different information processing strategies (see also Reese, Steffens, & Jonas, 2010). Precisely, the cognitive process we propose to determine the BSE is that an ingroup norm deviant triggers a deeper mode of information processing than a comparable outgroup deviant, because ingroup information is more relevant for the social self. In fact, the mere associative proximity of a deviant to one's own group should suffice to elicit a deeper mode of information processing, and thus lead to stronger means of punishment. In the current article, we aim to show that the differences in information processing depth determine the degree of ingroup and outgroup deviant devaluation, and thus determine the BSE.

IV.2. Information Processing and Group Membership

Given the importance of an ingroup deviant for one's social group and the self, we claim that depth of information processing is an important underlying mechanism for understanding the BSE. We use the heuristic-systematic model (HSM, Chaiken, Liberman, & Eagly, 1989; Chen & Chaiken, 1999) as dual-process framework for our reasoning because it makes clear predictions about the variables that determine the depth of information processing (for a review on other dual-process approaches, see Chaiken & Trope, 1999). According to the HSM, individuals' judgments of social stimuli are determined by two distinct processing modes. Systematic processing defines a mode of information processing that is characterized by a relatively analytic and elaborate treatment of judgment-relevant information. It occurs when individuals carefully consider information, think extensively about its contents, possible relations to other

information and connections to prior knowledge. In contrast, less careful reasoning and superficial scanning of information mainly guide heuristic processing. Whether information is processed one or the other way depends on the relevance of the information, the availability of cognitive resources and individuals' motivation (Chen & Chaiken, 1999). Given these influencing factors, it is feasible that a deviant's group membership determines how deeply people process information.

Information about negative ingroup members is of high relevance to other group members (Marques & Paez, 1994; Tajfel & Turner, 1979). Precisely, an ingroup offers social meaning to its members, influences their self-evaluation (Abrams & Hogg, 1990) and serves as a psychological utility to enhance the self-concept (Correll & Park, 2005). A large body of related research addressed the issue why individuals care about the ingroup (e.g., Brewer, 1991; Caporael, 1997), including earlier work on realistic group conflict (LeVine & Campbell, 1972; Sherif, Harvey, White, Hood, & Sherif, 1961). Recent empirical evidence that the ingroup is more important to group members than the outgroup has been presented by Glasford, Pratto and Dovidio (2008), using cognitive dissonance after norm violation as an indicator for ingroup importance. In fact, there is also evidence that people use different information processing strategies as a function of a target's group membership.

Mackie, Worth, and Asuncion (1990) tested whether group membership information can trigger systematic information processing. In their studies, participants received either strong or weak persuasive messages that were either expressed by an ingroup or an outgroup member. Subsequently, attitudes were assessed. Participants were persuaded more effectively by the ingroup source, indicating deeper information processing. Furthermore, the authors were able to show that strong messages presented by an ingroup member led to stronger attitude change compared to the same message being presented by an outgroup member. In another series of experiments, Mackie and Worth (1989) had participants read stories depicting positive or negative activities either involving an ingroup or an outgroup target. In a subsequent memory task, participants recalled more information about ingroup members than about outgroup members. Moreover, information about ingroup members performing negatively was recalled better than information about those performing positively, indicating a processing advantage of negative ingroup information compared to positive ingroup information. More recently, Reese et al. (2010) directly measured information

processing of norm deviance as a function of group membership. In two experiments, they found that information about ingroup deviants was processed more systematically than outgroup deviant information, using both a self-report measure and a measure of hemispheric brain activation. Thus, given the evidence that group information triggers a certain degree of information processing, we will in the following elaborate on the prediction that devaluation of norm deviants, and the BSE in particular, is determined by these differences in information processing.

IV.3. The Processing – Devaluation Link

We claim that the increased devaluation of ingroup compared to outgroup deviants, the BSE as it were, is based on the fact that people process ingroup information more systematically. According to the HSM (Chaiken et al., 1989), people are motivated to form and defend information that is consistent with their self-knowledge. Given that ingroup information is processed rather systematically (Mackie & Worth, 1989; Mackie et al., 1990; Reese et al., 2010), it is likely that group members are defense-motivated once their self-concept, being linked to their social identity, needs protection (Chaiken, Giner-Sorolla, & Chen, 1996; Chen et al., 1999). In particular, the desire for a positive social identity, and therefore means to protect it, should engender systematic processing (Bohner, Moskowitz, & Chaiken, 1995), as the aim of a defense-motivated person is to protect, verify, and enhance the self-concept and those aspects the self is vested in. Thus, the more such thoughts about the ingroup's degraded norms and its negative impact for the self are taken into account, the stronger should be the need to protect the group, and the self. In terms of the BSE, this should be accomplished by devaluing or punishing the norm deviant (Marques & Paez, 1994). A decrease in the ability to process ingroup information, should in turn lead to more punishment.

Although to our knowledge, it has not yet been directly tested whether increased processing depth predicts stronger devaluation or punishment in an intergroup setting, there is preliminary evidence consistent with our reasoning. Coull et al. (2001) tested the effect of ingroup identification on the devaluation of ingroup deviance and cognitive performance. Participants received information about either a favorable or unfavorable ingroup member while at the same time engaging in a secondary, cognitive task. Results revealed that highly identified ingroup members, in comparison to those being lowly identified, devoted more cognitive resources to the ingroup norm deviant: When

confronted with the unfavorable ingroup member, highly identified participants devalued the norm deviant more strongly while performing worse in the secondary task, compared to the lowly identified group members. We argue that the highly identified participants in Coull et al.'s experiment engaged in systematic information processing, triggered by the negative ingroup member, which in turn drew cognitive resources necessary for performing the secondary task. The increased elaboration of norm deviance displayed by the deviant led to stronger attempts to restore the positivity of participants' social identity. Effects of an outgroup deviant were not tested. This is central for our argument, because we think that the effect of social categorization on information processing determines evaluative responses towards both the ingroup and outgroup deviant, resulting in the BSE.

In order to strictly test whether the BSE is grounded in a basic, cognitive process, we use both classical BSE paradigms (Experiments 1 and 2), and draw from recent evidence using an automatic behavior priming approach (Experiment 3; see also Jonas, 2009). In this research a BSE was even found when assessing response latencies with punishment-related target words as a function of deviant's group membership primes. It was argued that the associative proximity between the prime ("perpetrator") and the deviant's group membership lead to faster punishment target activation when the deviant was presented as an ingroup, compared to an outgroup member. Thus, in Experiment 3, we predict the BSE when this close association is given (i.e., when processed systematically). When systematic processing of the ingroup deviant information is reduced, a close association between ingroup and deviant cannot be properly formed, decreasing the automatic activation of punishment-related target words. Taken together, we hypothesize that the BSE is determined by underlying information processing modes that either facilitate or inhibit responses to norm deviance.

IV.4. Overview of Current Research

Three experiments measuring and manipulating information processing styles in an intergroup deviance setting were conducted to test our hypothesis. The first experiment was designed to establish the BSE while assessing patterns of ingroup and outgroup information processing. If increased systematic processing predicts stronger devaluation of norm deviants, a direct manipulation of cognitive resources should alter

the BSE. In Experiment 2, we thus decreased participants' information processing resources by putting them under cognitive load with a secondary task, and then measured their responses towards an ingroup norm deviant. Finally, if the BSE is based on an automatic associative proximity between the deviant and the group, we should find a BSE when this close association is given (i.e., when systematic processing is possible), but not when participants were cognitively constrained (i.e., the deviant being associatively more distal). To test this, we used an automatic response priming paradigm in Experiment 3, and manipulated deviant's group membership and cognitive load orthogonally.

IV.5. Experiment 1

In the first experiment, we wanted to establish the BSE while concurrently assessing whether there are differences in processing information about in- and outgroup deviants. In line with previous research on the BSE, we presented information about a norm deviant who was either an ingroup or an outgroup member. Specifically, we gave East German participants the description of either an East or a West German student who hid an important book in the university's library (for a similar manipulation, see Gollwitzer & Keller, 2009). Participants were then given the measures of devaluation and information processing. We predicted that information about an ingroup deviant is judged more negatively and processed more systematically compared with information about an outgroup deviant. Before the manipulation, we gave participants a measure of ingroup identification because the BSE could be stronger among highly identified participants (see also Bègue, 2001; Branscombe et al., 1993).

IV.5.1. Method

Participants and Design

Sixty-five students from the University of Jena (44 female, M_{age} = 22 years, SD = 3) took part in the experiment. They were randomly assigned to either the ingroup deviant or the outgroup deviant condition.

Procedure

Participants were invited to take part in a study on "memory of social information" on the university's campus. In a laboratory setting, they were seated at

separate tables and received both written and oral instructions. Presented as a "pretest for another study", we measured ingroup identification with four items (e.g., "I identify with East Germans", "I am similar to other East Germans"). The items were averaged into a single identification score (α = .81).

Then, to manipulate the deviant act, participants received a description of a person who hid an important book in the university's library. As many students were in need of the book, an extensive search had been initiated, which proved successful after strong efforts of the library's employees. Due to a personal note left in the book, the person who hid the book could be backtracked and identified. Group membership was manipulated by either describing the deviant coming from Weimar (East Germany, ingroup) or Munich (West Germany, outgroup). Apart from the information of the deviant's origin, the descriptions were identical. Subsequently, experimenters handed participants the devaluation measure. Eight items were used to judge the deviant and their behavior (e.g., "What the person has done cannot be justified", "The person in the situation description should be punished": α = .80). After assessing devaluation, participants assessed the extent of how they processed the information. We adjusted a measure used by Neuwirth, Frederick, and Mayo (2002). Eight items were designed to reflect systematic (e.g., "I think about how strongly the information just presented relates to other situations I already experienced") and heuristic (e.g., "I usually only scan information like that presented before") processing. To assess the relative amount of systematic information processing, we computed a ratio score from the means of the systematic and heuristic processing items. Higher values indicate stronger relative systematic information processing.

All items in the current experiment were rated on 7-point Likert-scales with the endpoints labeled (1 – "I strongly disagree" to 7 – "I strongly agree"). At the end of the experiment, demographic data were collected and participants were thanked, compensated, and debriefed.

IV.5.2. Results

All analyses reported in the following experiments were conducted with $\alpha < .05$, one-tailed. As an indicator of the effect size, η^2_p and *d* are reported (Cohen, 1977).

In order to assess the extent of devaluation and information processing as a function of deviant's group membership, we computed ANOVAs on the dependent

variables. As expected, an ingroup deviant was judged more negatively than an outgroup deviant (M_{ingroup} = 5.20, *SD* = 0.81 vs. M_{outgroup} = 4.80, *SD* = 1.09), $F(1, 63) = 2.90$, $\eta^2_p = .04$, indicating a BSE. With regard to information processing, the ratio score of our processing measure revealed that information about an ingroup deviant was processed more systematically than information about an outgroup deviant (M_{ingroup} = 1.63, *SD* = .70 vs. M_{outgroup} = 1.34, *SD* = 0.47), $F(1, 63) = 3.62$, $\eta^2_p = .05$.

In general, participants' identification with the group East Germans, *M* = 4.45, *SD* = 1.28, was significantly above the scale mean, $t(64) = 3.07$, $d = 0.35$, indicating that their group membership was important to them. Possibly as a consequence of this high identification, identification did not interact with deviant's group membership on any of the dependent variables, all *F*s < 1.50, *ns*. If identification was related to devaluation of ingroup deviants, we should find a correlation. This was not the case, $r(34) = .16$, *ns.* Other correlations among the dependent variables also were non-significant, all *r*s < .15, *ns*.

IV.5.3. Discussion

Experiment 1 provides first evidence that information processing strategies and the BSE are a parallel outcome following group membership information of a deviant. As expected, participants judged the ingroup deviant more negatively than the outgroup deviant. In parallel, information about an ingroup deviant was processed more systematically than about an outgroup deviant. The latter finding is in line with findings previously presented by Reese et al. (2010). In contrast to prior findings (Bègue, 2001; Branscombe et al., 1993), identification did not moderate the BSE in the current experiment. Still, the extent of identification reveals strong ingroup significance to participants.

Contrary to our argumentation, we did not find any correlation between devaluation and the extent of information processing although both main effects were present in the expected direction. Probably, the self-report measures were not sensitive enough to reveal shared variance. To create a stronger impact of information processing style, in the following experiment, we therefore manipulated information processing to test its effect on the devaluation of an ingroup deviant.

IV.6. Experiment 2

In the second experiment, we tested whether the extent of information processing has a causal influence on devaluation of an ingroup norm deviant. One way to manipulate the extent of information processing is to manipulate participant's cognitive resources (Chen & Chaiken, 1999), as their availability is a necessary pre-condition to process information systematically. Therefore, we put half of the participants under cognitive load with a secondary task while they read information about the norm deviant. In this experiment, the deviant was a fellow student who behaved negatively during a lecture. As we wanted to test the general effect of cognitive load on reactions to an ingroup deviant, no outgroup was included. After presentation of the deviant, participants judged the deviant on our devaluation measure and indicated their extent of information processing. We predicted that under cognitive load, when systematic processing was hindered, participants would indicate less systematic information processing and, more importantly, display weaker devaluation of the ingroup deviant compared with the control condition. This would suggest that, when systematic processing is triggered, participants devalue more strongly. Again, we measured ingroup identification, expecting to find stronger devaluation among highly identified participants.

IV.6.1. Method

Participants and Design

Participants were 90 students from the University of Jena (53 female, M_{age} = 22 years, *SD* = 2). They were randomly assigned to either the cognitive load or the no load condition, and received course credit or chocolate for compensation.

Procedure

On arrival, participants were led into separate cubicles in a laboratory on the university's campus. Ingroup identification was measured as in Experiment 1, this time assessing identification with the group of "students", α = .79. Participants were then given the description of norm deviance. In this vignette, a student behaved negatively in a lecture, and finally insulted the lecturer heavily before being escorted out of the lecture hall by fellow students. While reading the situation description, half of the participants engaged in a secondary task (cognitive load). Via earphones, they listened

to crowd noise and were asked to silently count a bell that occasionally rang (see Berthold, Steffens, & Mummendey, 2009). Afterwards, participants were asked to indicate how often they heard the bell. The other half (no cognitive load) did not engage in a secondary task during reading. After presentation of the situation, participants were asked to evaluate the deviant using an 11-item measure analogously to the one used in Experiment 1 ($\alpha = .86$). Subsequently, they indicated the extent to which they systematically processed the information, using Experiment 1's measure. Finally, demographic data were collected before participants were thanked, compensated and debriefed.

IV.6.2. Results

The effect of cognitive load on the measure of information processing was not statistically significant, $F(1, 88) = 2.37$, $p = .06$, $\eta^2_p = .03$, but descriptively in the expected direction. Participants processed less systematically under cognitive load ($M = 1.10$, $SD = 0.94$) compared with not being under cognitive load ($M = 1.43$, $SD = 1.07$)[4]. Though only in tendency, this is in line with our hypothesis.

The devaluation score was submitted to an ANOVA that revealed the expected effect of cognitive load, $F(1, 88) = 3.29$, $\eta^2_p = .04$. In line with our expectations, participants judged the deviant less negatively under cognitive load ($M = 3.83$, $SD = 1.05$) compared with participants in the control condition ($M = 4.24$, $SD = 1.10$).

In general, participants were highly identified with the group of students ($M = 4.98$, $SD = 1.21$), differing significantly from the scale mean, $t(89) = 7.67$, $d = .81$, indicating that their group membership was important to them. Again, identification did not interact with cognitive load, $F < 1$. Yet, identification significantly correlated with devaluation, $r(90) = .41$, indicating that the stronger participants identified with their ingroup, the stronger they devalued the ingroup norm deviant. Descriptively, the deeper participants reported to have processed the ingroup deviant information, the more strongly they devalued the norm deviant, $r(90) = .19$, $p = .07$.

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[4] Given that the mean for both the systematic and the heuristic processing items can theoretically distribute anywhere between 1 and 7, the ratio score consequently has a potential range from 0.14 to 7. A value of 1 would reflect equal values on the heuristic and systematic items. This does also apply to Experiment 1.

IV.6.3. Discussion

The second experiment manipulated cognitive load as a means to reduce participants' ability to systematically process information. The effect on our processing measure was weak, probably because participants' ability to self-evaluate their extent of information processing was only moderate. Nonetheless, the manipulation was still effective: In line with our reasoning, reduced information processing led participants to show less devaluation of the ingroup norm deviant. Put differently, when participants were able to process systematically, they devalued the norm deviant more strongly, which was also reflected in the correlation between systematic information processing and devaluation. The degree of ingroup identification related positively to devaluation. This indicates that the more central group membership for participants, the stronger their need for group-protective behavior—independent of the cognitive load manipulation.

We measured ingroup identification, and expected moderation with regard to information processing (see Reese et al., 2010) and devaluation (see Bègue, 2001; Branscombe et al., 1993). In both experiments, we found neither. Identification was generally high in both group contexts (East Germans and students), indicating high relevance for the participants. This ceiling effect may potentially have impeded a statistical difference between highly identified and "less highly" identified participants. As we used the East vs. West German context again in Experiment 3, we decided to discard this variable in the final experiment.

The current findings provide insight into the underlying mechanism of information processing that explains deviant devaluation. Manipulating cognitive resources slightly changed the self-reported mode of information processing and significantly decreased deviant devaluation. In terms of the BSE, however, the results are not conclusive, as we did not include an outgroup deviant in our design. This was the case because we wanted to generally test whether the manipulation of cognitive load affected the response towards an ingroup norm deviant.

Evidently, one could criticize that we used a self-report measure to assess how deeply participants processed information. Participants could have strategic concerns—in fact, it could be seen as more appropriate to indicate deeper information processing for one's own group than for "the others". Moreover, it is questionable whether explicit self-report measures are appropriate to assess (potentially unconscious) cognitive

processes (Fazio, 1990). Therefore, we followed a different approach for the last experiment that allows tapping more directly into the cognitive processes. Drawing from earlier research on automatic social behavior (Jonas, 2009) that revealed that the mere association of a deviant and one's ingroup suffices to elicit a BSE, we investigated the moderating role of information processing depth using an automatic response paradigm (Jonas & Sassenberg, 2006). This would reveal an intriguing demonstration of our hypothesis that decreased processing of an ingroup deviant act leads to the elimination of the BSE.

IV.7. Experiment 3

The aim of the third experiment was to extend and clarify the preceding findings on systematic processing as a precondition for the BSE, addressing two major issues. First, we wanted to show that manipulating information processing determines the BSE. As the analysis of the BSE requires the comparison between ingroup and outgroup deviance, we orthogonally manipulated group membership of the deviant and cognitive load, the latter to decrease participants' ability to process systematically. This allowed us to test the influence of decreased information processing capacities on the BSE.

Second, we have yet argued that information processing depth primarily acts upon motivational concerns about the ingroup's norms—the less group members think about a deviant's group-norm destructing behavior, the less need to protect it. It is also possible that more basic, associative processes are affected by how deeply people process deviant information. The previous experiments could not account for such an explanation. In a recent study, Jonas (2009) argued that the mere associative proximity of a deviant with the ingroup, and thus the self, suffices to elicit a BSE. Based on the idea that individuals do not want to be falsely associated with deviant ingroup members (Eidelman & Biernat, 2003), Jonas argued that an automatic association between the deviant and the ingroup exists that elicits automatic, punishment-related responses. For outgroup deviants, such an association is less strong, because the self is not as firmly linked to the outgroup, and therefore weaker punishment-related responses result. So, if information processing depth is a general cognitive moderator of the BSE, we should find a stronger association between the deviant and the ingroup, reflected by stronger activation of punishment-responses after priming with a general perpetrator category, when systematic processing is possible. However, when systematic processing is

hindered, participants fail to form a stronger association between the ingroup and the deviant, thus leading to less punishment-related response facilitation. This in turn can be interpreted as an indication for the elimination of the BSE.

In a parallel vein, a strong association of the deviant with one's ingroup should make it more difficult for participants to ignore the deviant, as this person, qua shared identity, is directly linked to the self. With regard to our reasoning, ignorance response behavior may thus represent a proxy for information processing: When systematic processing allowed a strong association between the deviant and the ingroup, participants should have difficulties ignoring the deviant. Logically, it should be easier to ignore an outgroup deviant who does not have a strong association to the ingroup. Once systematic processing is hindered, the association between the deviant and the ingroup is weaker, and therefore should be easier to ignore.

Concretely, we built up on previous research by Jonas (2009), using an automatic response priming approach that revealed that certain social categories activate response behavior (see also Jonas & Sassenberg, 2006), and not only imitation (for a review, see Dijksterhuis & Bargh, 2001). The difference between these two potential reactions towards a social category is that response behavior is a specific reaction that is directly linked to the social category (i.e., to trust a doctor). Imitation in contrast reflects the copying mechanism of the content of a social category (i.e., performing better in a heart surgery after being primed with doctor). According to Jonas (2009) a category prime like "perpetrator" elicits punishment behavior, a typical response for individuals when being confronted with a perpetrator. As their obtained results show, when the perpetrator category has primarily been linked to the ingroup, this effect is stronger than after presentation of an outgroup perpetrator. When a deviant is associated with the ingroup, it is important to focus attention and processing capacities on the deviant as his behavior reflects negatively on the self. Thus, we argue that ignoring behavior should not be a typical response to an ingroup perpetrator, and consequently, participants take longer to respond to ignorance-related target words.

Based on the assumption that the associative proximity of the deviant to the ingroup is sufficient to produce a BSE, we assumed that depth of information processing moderates the BSE in the current experiment. Judgments formed on the basis of systematic processing are characterized by relative in-depth treatment of self-relevant information, and thus are accordingly responsive to the information's semantic content

(Chen et al., 1999). In other words, systematic processing enables to form a strong associative link between the deviant and the ingroup. In line with Jonas (2009), this should lead to faster punishment target activation (but slower ignorance target activation) compared to an outgroup deviant, due to the associative proximity between the deviant and the ingroup, and thus, the self. When individuals are unable to process information deeply, a weaker association between the deviant and the ingroup should be formed. Consequently, the deviant is seen as more distant from the self, and therefore, punishment target activation becomes slower (and ignorance target activation faster) in comparison to when the ingroup deviant was processed systematically.

Consequently, we predicted a BSE when systematic information processing of the deviant act and the categorization of the perpetrator was possible, indicated by response facilitation (i.e. faster responses to punishment-related target words after perpetrator compared to control primes) when an ingroup compared to an outgroup deviant was previously presented. Analogously, we expected an ignorance effect in a reversed way that an ingroup deviant is harder to ignore (i.e., slower responses to ignorance-related target words after perpetrator compared to control primes) than an outgroup deviant. When participants process more heuristically, ingroup punishment should decrease because participants would form a weaker association between the deviant and the ingroup, leading to the elimination of the BSE. Analogously, the ignorance effect should disappear when participants process more heuristically, because a weaker association between a perpetrator and one's own group should be more easily ignorable.

IV.7.1. Method

Participants and Design

Participants were 93 East German students (64 female, M_{age} = 22 years, SD = 2) from the University of Jena, and received chocolate or course credit for their participation. The full experiment had two orthogonally manipulated between-group factors with deviant group membership (ingroup vs. outgroup) and load (load vs. no load), and two fully balanced within-group factors with prime (perpetrator vs. control) and target (punishment vs. ignorance). To allow for an easier interpretation of the response latency means of the four-way interaction, we computed a prime activation

score[5]. We computed difference scores between the punishment-associated (perpetrator-target) and the non-associated (control-target) prime-target combinations. The same difference was computed for ignorance-associated targets. *Higher values* thus indicate *quicker response times* after the perpetrator-prime compared to the control-prime.

Procedure

The experiment was conducted in a laboratory in individual cubicles, using materials from Jonas (2009). Participants were welcomed and seated in front of a computer with a diagonal of 17 in. and a resolution of 1280x1024 pixels. After signing informed consent, all instructions for the experiment were given on the computer screen. First, participants were asked to read a situation description of severe norm deviance. In this description, a group of people was described who engaged in several acts of vandalism at nighttime, destroying a flowerbed and damaging the facade of a newly refurbished student residence. The perpetrators then entered a car that had a license plate indicating either East German (Weimar, ingroup) or West German (Munich, outgroup) origin, and left. Participants in the cognitive load condition engaged in the cognitive load manipulation used in Experiment 2 while reading the deviant act.

After reading the vignette, a lexical decision task with semantic primes followed by punishment and ignorance targets was presented as a measure of punishment as well as information processing. The instructions introduced the task as a test of word recognition and stated that primes were shown briefly before the word because we were interested in the influence of distraction on responses. In each trial, a fixation cross was displayed on the screen's center for 500ms, followed by the prime that was presented supraliminally for 175ms. Before the target appeared the screen went blank for 30ms (SOA = 205ms). The target was shown in 18 pt. capital letters (as was the prime) and participants were instructed to judge whether the target was a word or a non-word using the left and right ctrl-keys on the keyboard. With the response, the screen turned blank again, and the next trial started 500ms after participants' response. Ten practice trials were presented before participants worked through 48 experimental trials. Two sets of stimuli were realized in the lexical decision task. Three words

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[5] The overall four-way interaction was also significant, $F(1, 83) = 9.42$, $\eta^2_p = .10$.

associated with "punishment" (to punish, to retaliate, to instruct) and three words associated with "ignorance" (to overlook, to look away, to forget) were combined twice with the experimental prime (perpetrator) and twice with the control prime (baker, chosen for its non-relatedness to punishment or ignorance responses and similar word length in German), resulting in 24 critical trials, twelve for each subset (for the original German prime and target words, please refer to the Appendix). The same number of non-words was presented, half of them preceded by perpetrator and half preceded by baker. The prime-target combinations were randomly drawn by the experimental software (DirectRT, v2008). After completion of the lexical decision task, participants were thanked, compensated and thoroughly debriefed.

As we aimed to eliminate only a small percentage of responses (see Ratcliff, 1993), all responses below 150ms and more than three standard deviations above the prime-target combinations' mean response times as well as response times of wrong answers were omitted from the analysis. Precisely, responses above 1678ms, 1568ms, 1809ms, and 1771ms (for associated punishment combinations, non-associated punishment combinations, associated ignorance combinations, and non-associated ignorance combination, respectively) were omitted. The mean response latencies for each prime-target combination were normally distributed (Kolmogorov-Smirnov test: all Zs < 1.33, all ps > .05) and therefore not log-transformed.

IV.7.2. Results

Punishment

The punishment score was submitted to a 2(Deviant: Ingroup vs. outgroup) x 2(Load: Load vs. no load) ANOVA. The analysis revealed the expected interaction between deviant and load, $F(1, 84) = 4.18$, $\eta^2_p = .05$ (see Figure 4). The analysis of simple main effects revealed the predicted BSE in the no-load condition. Participants responded relatively faster to the perpetrator-punishment associations following an ingroup deviant (M_{diff} = 20 ms, SE = 30 ms) compared to an outgroup deviant (M_{diff} = -103 ms, SE = 29 ms), $F(1, 84) = 8.86$, $\eta^2_p = .10$. In the cognitive load condition, there was no difference between the ingroup (M_{diff} = -22 ms, SE = 30 ms) and the outgroup deviant (M_{diff} = -24 ms, SE = 30 ms), $F < 1$, indicating that decreased systematic information processing eliminated the BSE. Moreover, an overall a main effect of deviant emerged, $F(1, 84) = 4.48$, $\eta^2_p = .05$, indicating that participants' perpetrator-punishment

association was more strongly activated after ingroup deviance (M_{diff} = -1 ms, SD_{diff} = 120 ms) compared to after outgroup deviance (M_{diff} = -65 ms, SD_{diff} = 158 ms). The main effect of load on punishment was not significant, $F < 1$.

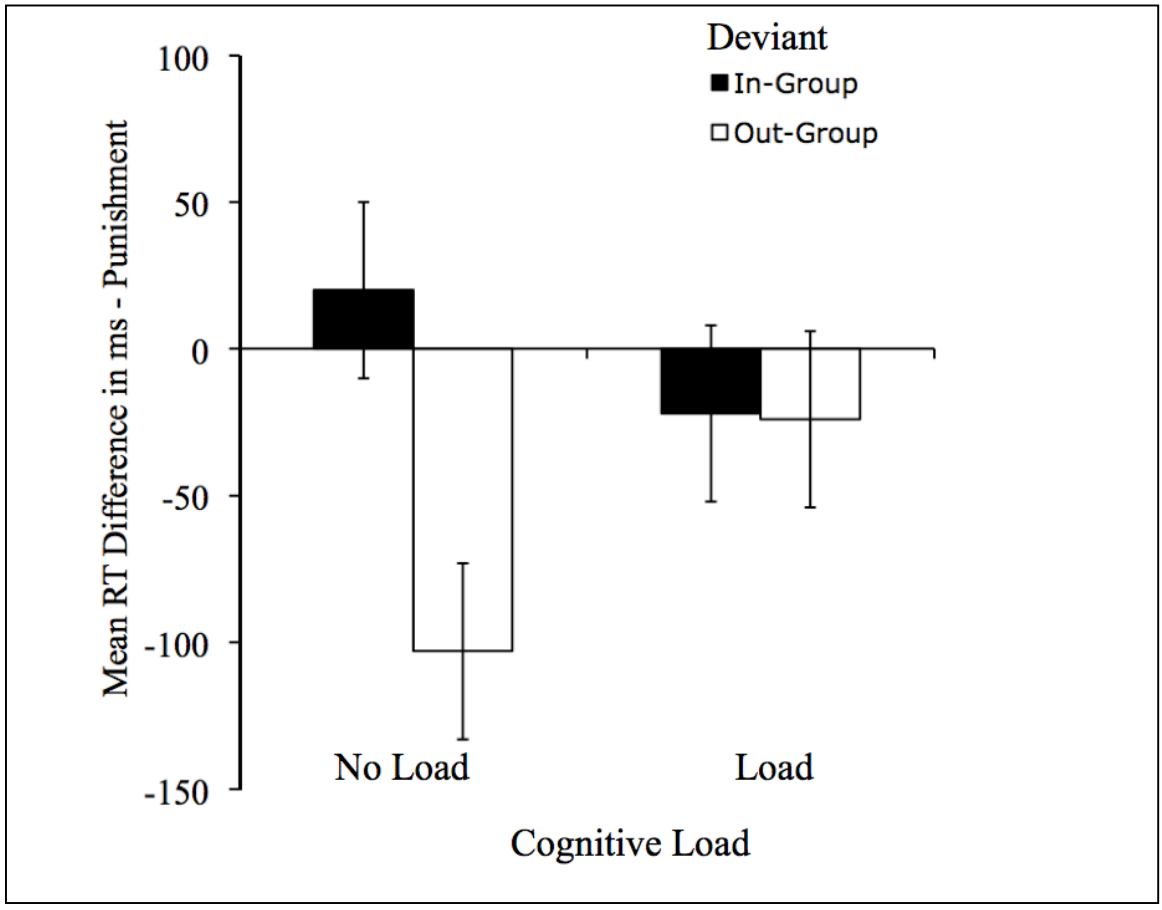

Figure 4. Experiment 3: Mean reaction times (+SE) of punishment-related associations as a function of cognitive load and deviant group membership. Higher values indicate faster reactions after punishment primes compared with control primes.

Ignorance

In analogy to the analysis of punishment, we tested the effect of load and deviant's group membership on ignorance-related associations by calculating the difference score between associated and non-associated prime-target combinations. Higher values thus indicate faster reactions to ignorance after a perpetrator-prime compared to after a control-prime. The 2 x 2 ANOVA revealed the expected interaction between deviant and load, $F(1, 86) = 7.30$, $\eta^2_p = .08$ (see Figure 5). The analysis of simple main effects revealed the predicted ignorance effect in the control condition.

Participants showed relatively slower responses to perpetrator-ignorance associations after presentation of an ingroup deviant (M_{diff} = -64 ms, SE = 36 ms) compared to an outgroup deviant (M_{diff} = 90 ms, SE = 33 ms), $F(1, 86) = 10.01$, $\eta^2_p = .10$, indicating that they had more difficulties ignoring ingroup compared to outgroup deviance.

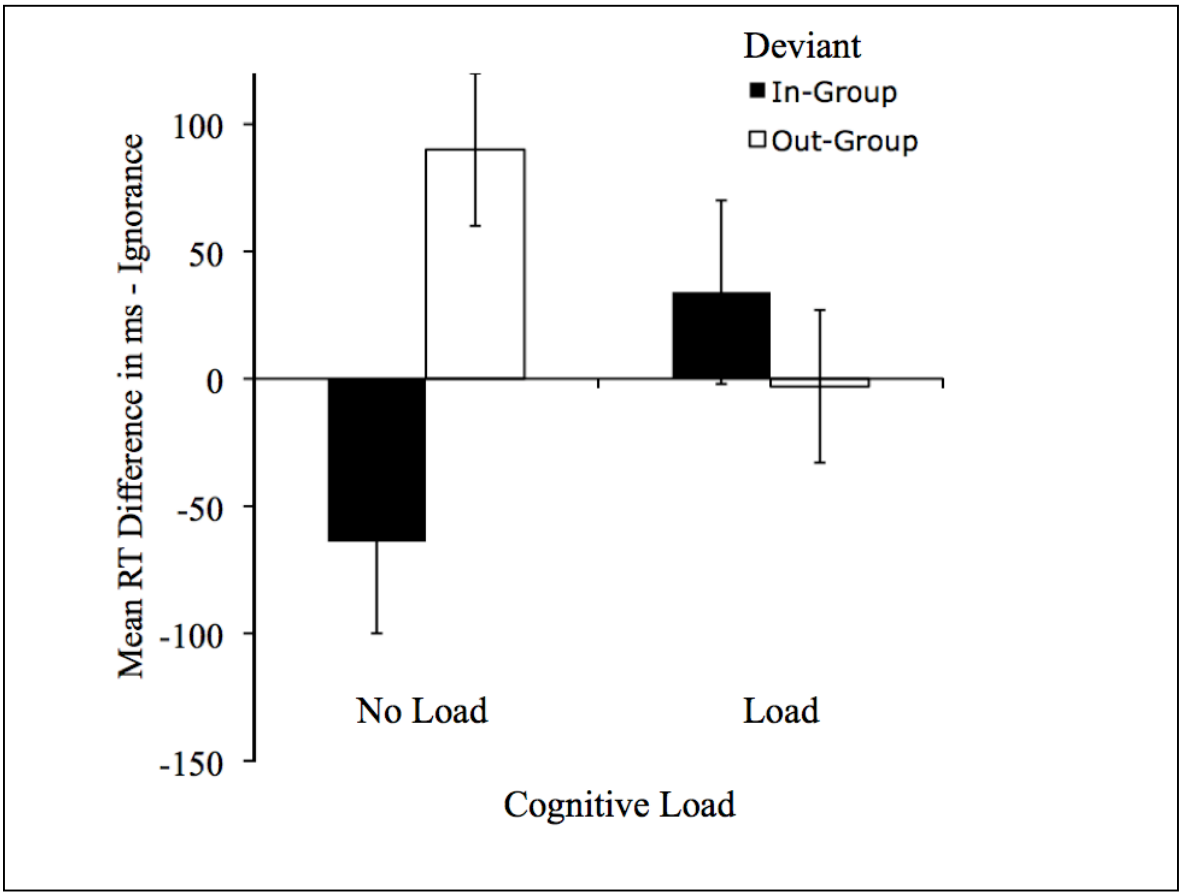

Figure 5. Experiment 3: Mean reaction times (+SE) of ignorance-related associations as a function of cognitive load and deviant group membership. Higher values indicate faster reactions after punishment primes compared with control primes.

In the cognitive load condition, there was no difference between an ingroup (M_{diff} = 34 ms, SE = 36 ms) and outgroup deviant (M_{diff} = -3 ms, SE = 36 ms) with regard to ignorance, $F < 1$, indicating that ignoring behavior was independent of deviant's group membership when systematic processing was decreased. Moreover, a non-significant main effect for deviant emerged again, $F(1, 86) = 2.81$, $p = .10$, $\eta^2_p = .03$, indicating that participants responded slower towards ignorance-related associations after an ingroup (M_{diff} = -16 ms, SD_{diff} = 183 ms) compared to an outgroup (M_{diff} = 47 ms, SD_{diff} = 161 ms) deviant, indicating that the ingroup triggered systematic processing. The main effect of load on ignorance was not significant, $F < 1$.

IV.7.3. Discussion

The third experiment confirmed our major hypothesis, showing that on an automatic level of punishment, individuals' responses to norm deviants were moderated by information processing modes. We found a BSE under conditions in which participants' information processing was not manipulated, thus replicating the findings obtained by Jonas (2009). Participants responded faster to punishment associations after the presentation of an ingroup deviant compared with an outgroup deviant, indicating that punishment was more strongly activated for ingroup deviance. An inverse effect was found for ignorance associations. Participants took longer to react to these words after they were exposed to an ingroup deviant, indicating that they had more difficulties to ignore an ingroup compared with an outgroup deviant. This finding supports our notion that a strong association between the ingroup and the deviant category prime formed. Consequently, ingroup deviance could not be as easily ignored as the outgroup deviance, thus leading to slower responses in the lexical decision task. As expected, under cognitive load, both the BSE and the ignorance effect disappeared. These results clearly support, and extend, the findings reported in the prior experiments. Evidently, the BSE is not only determined by automatic punishment associations as shown by Jonas (2009), but also influenced by how deeply people process the deviant information, with stronger or weaker punitive responses as result.

The interaction effect of cognitive load and deviant's group membership on the automatic behavior measure is indeed intriguing, and is strong support for our arguments. The pattern of results suggests that the BSE emerges on a level of basic cognitive processing, yet these automatic processes can be altered when a systematic mode of information processing is hindered. Although this is the first demonstration that associative proximity of a deviant to one's in-group is affected by cognitive resource availability, and thus affects automatic responses priming (Jonas & Sassenberg, 2006), our findings are in line with the notion that certain conditions exist that alter automatic response processes (Blair, 2002; Gilbert & Hixon, 1991; Lowery, Hardin, & Sinclair, 2001; Macrae & Bodenhausen, 2000).

In fact, we want to highlight that we used punitive behavior to show the BSE. Most prior research focused on mere devaluation of norm deviants (Marques & Paez, 1994; but see van Prooijen, 2006). This qualitative difference further strengthens the generality of both the BSE, and our assumption that information processing determines

the extent of punishment.

IV.8. General Discussion

Three experiments tested our assumption that the BSE is based on how deeply people process information. In light of the overall pattern of results that emerged, we see our assumption confirmed. The first experiment provided initial evidence for our reasoning. We found a BSE while simultaneously, participants processed ingroup deviant information more systematically than outgroup deviant information. In the second experiment, participants downgraded an ingroup deviant less severely when systematic information processing was inhibited. In the third experiment, we replicated previous findings by showing that on a very basic level of cognitive processing, a BSE emerges (see also Jonas, 2009), and extend these findings by a moderation through information processing depth. Using an automatic response priming paradigm, we found stronger punishment after ingroup compared to outgroup deviance when participants could process information systematically, but not when they were put under cognitive load while reading the vignette. A complementary effect was found for ignorance of deviance. Participants had more difficulties ignoring an ingroup compared to an outgroup deviant when they could process systematically. In sum, when participants were hindered to think systematically about the ingroup deviant information, the BSE was eliminated. Thus, we gained a comprehensive picture of the effect of information processing on in- and outgroup punishment.

While we replicated prior findings on the role of group membership when it comes to devaluating norm deviants (Marques & Paez, 1994; Marques et al., 1988, 1998, 2001), we added an important facet. First and foremost, our results extend the motivational explanation of the BSE by isolating cognitive processes that follow from the knowledge of the norm deviant's group membership. We thereby advance and also clarify the findings by Coull et al. (2001). These authors indirectly measured information processing while their participants judged ingroup deviance, revealing that high-identifiers in particular seemed to invest more cognitive effort into dealing with the ingroup deviant. We extended these findings by manipulating the extent of information processing and directly comparing ingroup and outgroup deviants.

In Experiment 3, we showed that the mere association of a deviant with the ingroup suffices to elicit a BSE, and we show that this basic associative process is also

affected by depth of information processing. This is probably the most intriguing innovation of the current paper. Systematic processing enabled to form a strong associative link between the deviant and the ingroup, resulting in faster reactions towards punishment targets (and slower reactions towards ignorance targets), compared with an outgroup deviant. When individuals were unable to process information deeply, the association between the deviant and the ingroup evidently became weaker, and the BSE was eliminated. Nonetheless, this mere association to a deviant can also be driven by concerns about the group's norms, in particular with regard to one's position in the group—this position might drop when one is perceived to be too close to a deviant.

As automatic response priming is generally seen as an automatic, resource-independent process (Jonas, 2009; Jonas & Sassenberg, 2006, see also Dijksterhuis & Bargh, 2001, for a review), we did not expect the automatic response to be affected by depth of information processing. Indeed, participants reacted equally quickly in the no load and load conditions. But once group information came into play, depth of information processing did matter. The mere associative link between the deviant and the ingroup seemed to require systematic processing. This is in line with research on the malleability of automatic stereotypes that has shown that context factors exist that influence automatic processes (for a review, see Blair, 2002). In particular, cognitive load (e.g., Gilbert & Hixon, 1991) and social motivations (e.g., Lowery et al., 2001) seem powerful means to affect the automaticity of behavior. A similar associative process might of course underlie the findings in Experiment 2, which however used an explicit self-report measure that does not allow for such conclusions.

Apart from extending mechanisms underlying the BSE, one major implication we derive from this finding is that our results show the relation between information processing and devaluation/punishment to be less straightforward than assumed. Previous research proposed that *increased* information processing leads to *less* punishment and devaluation (Oswald & Stucki, 2009; Sargent, 2004; but see Tam, Leung, & Chiu, 2008). That research, however, differs in some important aspects from the current research. Both Sargent and Tam and colleagues based their analysis on stable processing dispositions (Need for Cognition, Petty & Cacioppo, 1982) that might not be sensitive to dynamic changes in social contexts. Moreover, these authors assessed general attitudes towards crime and punishment, whereas our measures focused on a

single but specific group member. It is thus likely that the divergence between general attitudes and situational behavioral intentions (Wicker, 1969; see also Kraus, 1995; Vermeulen, Corneille, & Luminet, 2007) is partly responsible for the apparently opposing findings. With regard to the findings of Oswald and Stucki (2009), this argument, however, does not hold. In their studies, participants also received situation descriptions with single incidents of norm deviance (e.g., theft), followed by offender-directed devaluation measures. These authors' results indicated that cognitive load increased devaluation of the offender, being in contrast to our pattern of results. We think the main difference to our experiments is our focus on social identity concerns. Given our findings, we highlight the necessity to take group membership information into account when analyzing whether information processing increases or decreases devaluation or punitive responses to norm deviance. Apparently, such contextual factors have a strong impact on this relation, as was expected given the desire for a positive social identity (Bohner et al., 1995).

Nonetheless, it is also possible that the severity of norm deviance determines how deeply people process information. Severe norm violations are usually punished harder, following the principle of proportionality (e.g., Duff, 2003). Thus, it is possible that truly severe norm violations (e.g., murder), being highly relevant and obviously attention-binding, elicit deep information processing, regardless of the perpetrator's group membership. Still, a murderer in one's group's ranks is likely to be processed even more strongly, as his or her behavior can have tremendous effects on the group's image. Obviously, future research should address this issue, and an orthogonal manipulation of group membership and norm violation severity could be a fruitful starting point.

A second major issue is that the current results are also relevant for developments in social justice research. In their recent work, Ham and colleagues (Ham & van den Bos, 2008; Ham, van den Bos, & Van Doorn, 2009) investigated cognitive processes that directly predicted both expression and accuracy of social justice ratings. Ham and van den Bos showed that personal relevance of a situation primarily elicits spontaneous inferences about social justice. In particular when events were perceived as unjust, these inferences were strong. Transferring these findings to the results in the current paper, it is feasible to assume that the personal relevance of an ingroup deviant, in contrast to an outgroup deviant, is stronger (see also Eidelman & Biernat, 2003) and therefore, inferences about justice, its consequences or its restoration are more

spontaneously inferred. For outgroup deviance, these inferences may not be as spontaneous, and thus less accessible at the time of judgment. This reasoning is very well reflected in the result pattern of Experiment 3. The automatic responses to punishment-related associations show that people spontaneously respond more strongly after ingroup deviance than after outgroup deviance. When systematic processing is decreased by cognitive load, a certain basis for drawing justice inferences disappears, and thus decreases the propensity to restore justice in the ingroup. In fact, a combination of both justice restoration and social identity protection could be the driving factor for the increased information processing and devaluation of ingroup deviants.

There are some limitations to the present research that deserve comment. In the current experiments, our measure of ingroup identification did not contribute to the explanation of the BSE and the effect of systematic processing. Potentially, the relatively high level of ingroup identification in the first two experiments did not allow for a qualitatively sufficient difference between those being "highly" and "very-highly" identified. In fact, it seems appropriate to apply finer-grained conceptualizations of identification than the usually (and in the current experiments) used compounded measure. Recently, a multidimensional approach of ingroup identification has been presented (Leach, van Zomeren, Zebel, Vliek, Pennekamp, Doosje, Ouwerkerk, & Spears, 2008), showing that several aspects of being identified can have different outcomes of group-related behavior.

Moreover, the relation between group membership of a norm deviant and information processing is possibly more complex than our current analysis suggests. It is likely that structural aspects of the ingroup also determine how strongly the information is processed, for example perceptions of the group's homo- or heterogeneity (e.g., Park & Judd, 1990), categorical versus attribute representation of ingroup vs. outgroup members (Ostrom, Carpenter, Sedikides, & Li, 1993; Taylor, Fiske, Etcoff, & Ruderman, 1978), or minority-majority relations (e.g., Erb, Bohner, Rank, & Einwiller, 2001). In fact, it could be a fruitful path to define how much such structural features of in- versus outgroup representation contribute to the fact that ingroup deviant information is processed more systematically.

IV.9. Conclusion

We aimed to identify the determinants and formation of social judgments when it comes to dealing with individuals that do not follow and confer to norms their group prescribes—the black sheep. We have presented a series of experiments that claim that judgments of undesired, because negatively behaving, ingroup members strongly depend on how much people elaborate on the deviance information they receive. Most importantly, our findings show that this cognitive elaboration is directly influenced by concerns about people's social groups and their norms, but also by concerns about not being personally associated to deviants. This suggests that the BSE depends strongly on the amount of cognitive resources people have available to respond to those who misbehave.

IV.10. Discussion – Outlook

In addition to the points discussed in this chapter, there are some other issues of the current series of experiments that deserve comment and further elaboration. These issues deal with the inconsistent pattern of results regarding ingroup identification, a connection of the current findings on automatic responses towards norm deviance and hemispheric activation, and an additional analysis of the role of norm deviance severity. These issues will be treated in the Overall Discussion of the current dissertation. Taken together, the current chapter provides further evidence for the reasoning that the BSE is based on different modes of information processing. Ingroup and outgroup deviance are processed in different ways, and we showed that depleting participants of cognitive resources decreased systematic processing and devaluation of ingroup deviants. We have discussed these results in light of theorizing on the BSE, and provided implications for related fields of research. In particular, the finding that mere associative proximity suffices to elicit a BSE, moderated by the mode of information processing, supports our notion that basic cognitive processes determine the BSE.

Chapter V – General Discussion

V.1. Overall Discussion

More thought, more punishment—these four words well reflect the overall relation between systematic information processing and devaluation of ingroup deviants. The goal of the current dissertation was to investigate the underlying cognitive information processing modes that were expected to determine the BSE. Altogether, seven studies and experiments were presented that provided evidence for our overall assumption: We found the BSE moderated by the extent of how deeply people process information. Put differently, the current results reveal that the motivational explanation of the BSE (Marques & Paez, 1994; Marques et al. 1988, 1998, 2001) needs to be extended by an underlying information processing mechanism that explains why people tend to devalue ingroup members more strongly than outgroup members (see also Biernat et al., 1999; Eidelman & Biernat, 2003; Jonas, 2009).

In Chapter I, three experiments were conducted that set up the basic idea of the current dissertation. In Experiment 1, a self-report measure revealed that information about an ingroup deviant triggered a deeper mode of processing than information about an outgroup deviant, in particular when individuals were highly identified with their ingroup. Using a measure of relative hemispheric brain activation, the basic effect was replicated in Experiment 2, however restrained to male participants. We predicted this pattern of results, given that the male brain is more strongly lateralized (see for example Claridge et al., 2002; Cowan et al., 2000; Kulynych, 1994; Lindell & Lumb, 2008; Siegel-Hinson & McKeever, 2002). The third experiment yielded initial evidence for the reasoning that these underlying information processes predict the extent of a deviant's devaluation. As expected, the BSE was found when information processing was not manipulated, suggesting that systematic processing led to stronger devaluation of

ingroup deviants. In fact, activating a systematic mode of information processing before participants were confronted with an outgroup deviant also led to stronger devaluation of the latter.

In the subsequent chapters, a pretest and three experiments were presented that focused more strongly on the effect of decreased systematic processing on devaluation of ingroup deviants, thus complementing the findings obtained in Chapter II. The pretest in Chapter III revealed a correlational link between information processing and devaluation of ingroup deviants. The more systematically participants processed information about the ingroup deviant, the stronger were their devaluative responses. In the first experiment, a BSE emerged, and information about an ingroup deviant was processed more systematically than information about an outgroup deviant. The second experiment aimed to test the effect of decreased information processing on devaluation of an ingroup deviant. As expected, participants devaluated an ingroup deviant less when systematic processing was hindered, suggesting a causal influence of processing modes on deviant devaluation. In the third experiment, a comprehensive test of the malleability of the BSE by decreased systematic processing was conducted. Drawing from previous research on automatic response behavior towards norm deviants (Jonas, 2009), we expected that the mere association of the deviant with one's own group suffices to show a BSE and its moderation by depth of information processing. Deviant's group membership and cognitive load were orthogonally manipulated, and punishment was measured with an implicit measure, using an automatic response priming paradigm (see also Jonas & Sassenberg, 2006). When systematic processing was possible, a strong association between the deviant and the ingroup formed, leading to faster punishment reactions in the subsequent lexical decision task. When participants were cognitively constrained, however, the BSE did not show. A parallel effect was found for ignorance targets. When systematic processing was possible, a strong association between the deviant and the ingroup formed, making it more difficult for participants to ignore the deviants behavior as reflected by slower reactions to ignorance targets in the lexical decision task. When participants were cognitively constrained, however, this effect disappeared. This experiment revealed that the BSE is indeed based on a basic cognitive process that emerges depending on the depth of information processing.

Overall, the current dissertation represents the first attempt to test whether an individual's mode of information processing influences the BSE. We thereby extend the

motivational basis of explaining reactions to norm deviance by proposing an information processing account, adding to the growing body of literature that focuses on the strong interplay between motivational concerns and cognitive processes in intergroup behavior (e.g., Chaiken & Trope, 1999; Fiske & Neuberg, 1990; Leyens & Yzerbyt, 1992; Petty & Cacioppo, 1986; Stangor & Thompson, 2002).

Tying the findings from both chapters together, the evidence we found is comprehensive. Both restricting and enhancing participant's propensity to process systematically eliminated the BSE (see chapters II.7 and IV.7 in particular). Yet, the processes leading to this elimination may differ. We advanced the argument that the importance and the protection of the ingroup's image is the primary reason for participants to process information systematically. As we illustrated in Chapter IV.3, people are motivated to form and defend information that is consistent with their self-knowledge (Chaiken et al., 1989). Based on the current findings, it is likely that group members were defense-motivated because of the threat to their self-concept (Chaiken, Giner-Sorolla, & Chen, 1996; Chen et al., 1999). In particular, the desire for a positive social identity, and therefore means to protect it, engenders systematic processing (Bohner, Moskowitz, & Chaiken, 1995), as the aim of a defense-motivated person is to protect, verify, and enhance the self-concept and those aspects the self is vested in. Thus, the more such thoughts about the ingroup's degraded image and its negative impact for the self were taken into account, the stronger the devaluation of the deviant. As expected, depleting resources and thus impeding systematic processing led to less devaluation of the ingroup deviant, suggesting that such concerns about the ingroup image were reduced.

The last experiment yet shows that the moderation of processing depth does not necessarily impact on the processing of ingroup protection motivations, but also on mere associative proximity of the deviant to the ingroup, and thus, the self. As we argued, systematic processing allows the formation of a stronger association between the ingroup and the deviant, thus leading to stronger automatic punishment activation. However, when constrained cognitive resources hinder the formation of this association, automatic punishment activation was weakened, and the BSE diminished.

A critical issue deserves comment here. Cognitive load *decreased* devaluation of an *ingroup* deviant in Experiment 3 of Chapter IV, whereas *increased* systematic processing increased devaluation of an *outgroup* deviant in Experiment 3 in Chapter II.

In Experiment 3, Chapter IV, however, cognitive load appeared to facilitate punishment-responses towards an outgroup deviant. These apparently opposing findings need further analysis and empirical clarification. One potential explanation may be grounded in the different measurement approach between those two experiments. There is a substantial amount of research that shows asymmetries between explicit and implicit measures. For example, Farnham, Greenwald and Banaji (1999) suggested that inconsistent relations (e.g., between self-esteem and ingroup bias) are grounded in social desirability factors. In their experiments, the authors could show that an implicit measure of self-esteem correlated with an implicit measure of ingroup bias, whereas explicit measures of self-esteem did not reliably predict ingroup bias. In the current experiment, participants might have felt diffident about expressing too high or low amounts of outgroup devaluation. These self-presentational concerns could have led to the different pattern of outgroup devaluation between those two experiments. Although this explanation appears plausible, and a substantial amount of research has shown these implicit-explicit asymmetries (e.g., Asendorpf, Banse, & Mücke, 2002, Dovidio, Kawakami, & Gaertner, 2002; for a meta-analysis, see Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005), further empirical work is needed to clarify these outgroup devaluation patterns.

We conclude that the intergroup phenomenon of the BSE is largely driven by the fact that people's judgments are based on their individual mode of information processing. Thus, theorizing on the BSE needs refinement. Obviously, we do not jeopardize the motivational explanation of the BSE. We have introduced the BSE in Chapter I as a motivational strategy, which has been underscored by a large amount of supportive evidence. Rather, we want to point out that the availability of sufficient cognitive resources seems an important moderator for the BSE. In line with the argumentation we brought up regarding the emergence of systematic versus heuristic processing, negative ingroup members trigger a more systematic mode of information processing than comparable outgroup members. This deeper mode of information processing has been shown to predict punitive or devaluative responses both in classical BSE study designs, but also using an innovative response priming paradigm (see Jonas, 2009). In fact, we are confident that the measure of hemispheric activation we used might also offer an original way to further investigate the predictive value of processing

depth on the BSE, and on responses to norm deviance in general (see Chapters II.6, II.8, and also Chapter V.1.3.).

The current dissertation also shows that more conceptual work needs to be done in order to explain and understand the BSE. One critical issue in this regard is that the emergence of the BSE is not as certain as the amount of published articles suggests. For the current dissertation, twelve studies were conducted that aimed at explaining the BSE from an information processing view. Only three of them showed the full BSE pattern necessary to assess the impact and co-occurrence of information processing modes. In fact, the overall lack of a BSE in the majority of the conducted experiments can make suspicious, in particular when highly similar or identical intergroup contexts were used. It is possible that for the corresponding subsamples, group membership to students or East Germans was not equally important, thus not eliciting a desire to protect the ingroup. In fact, a recent meta-analysis on the BSE (Stratton et al., 2010) suggests several variables that moderate the BSE. Although an overall BSE has been observed (mean d = .24) in this meta-analysis, it also revealed that several conditions affect the emergence of the BSE[6] (see below; see also Chapter V.1.2.).

In line with the main argument for deeper ingroup deviant information processing we presented in Chapter I, BSE effect sizes in the meta-analysis were higher for groups whose image was under high compared with low threat. This suggests that greater ingroup deviant devaluation was elicited when the ingroup's image or its norms were under high threat. Quite likely, one would expect deeper information processing under high threat, too, given the importance for the ingroup's image. With regard to the third experiment presented in Chapter IV, however, threat to the ingroup's image might not have a moderating influence. Still, the associative proximity of the deviant to the ingroup, and thus the self, might also be highly threatening, yet not for group image reasons but rather as a form of personal threat (see also Eidelman & Biernat, 2003).

Another moderator extracted by Stratton and colleagues (2010) is the variability of the outgroup. Though only weakly correlated with the effect sizes of the BSE (r = -.18, p = .10), the more variable the outgroup, the more negatively were deviant outgroup members judged in comparison with deviant ingroup members. This is in line with our

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[6] As the article about the meta-analysis cited is still in preparation at the time of writing, and thus has not yet been published, we discuss its contents with care.

findings obtained in Chapter II, Experiment 3. When outgroup deviant information was processed systematically, a more complex representation or perception could have formed, which then led to more negative outgroup judgments. Other variables being relevant include publicity of a deviant's behavior (the more public, the less ingroup deviant devaluation), cohesiveness of the ingroup (the more cohesive, the weaker the BSE), boundary strength of the ingroup (the more clear-cut group boundaries, the weaker the BSE) or gender (the BSE seems stronger among females). The latter in particular resembles an important link to the hemispheric-activation experiment in Chapter II.6. Based on the finding that only among men a difference in hemispheric activation (and thus information processing) was found, it might surprise that the BSE is stronger among women. From this, we conclude that more sensitive measures are necessary to grasp the potentially weaker changes in hemispheric activation among men. We also think that the findings from our hemispheric-activation measure cannot be easily compared with the explicit self-report measures used in classical BSE studies (see for example Khan & Lambert, 1998, for the gender context), given the dissociations between explicit and implicit (e.g., unobtrusive) measures (e.g., Asendorpf et al., 2002). Thus, among other potential moderators, differences in perceptions of the threat to the group image, the outgroup's variability or the ingroup's cohesion might be responsible for the relatively inconsistent occurrence of the BSE in the current work, and probably in other, unpublished work, too. Evidently, the search for variables that moderate the BSE and reactions to norm deviance in general has been extended by the current findings on the impact of information processing, but not yet completed. The remainder of this chapter deals with conceptual and methodological issues that we think are important to discuss, as they provide further clarification and future directions for research on punishment and the BSE in particular.

V.1.1. Heuristic Processing = Less Systematic Processing?

In the current studies, we focused on a relatively simplistic distinction between systematic and heuristic processing. For example, our data analyses presented here do not allow conclusions about whether processing was more heuristic when outgroup information was presented, or less systematic. Vice versa, was ingroup information processed less heuristically, or more systematically? In fact, we believe this distinction is secondary for the statement we made, as we were primarily interested in a relative

comparison of processing depth between in- and outgroup deviant information. However, the experiments using the explicit self-report measure (Experiment 1 in Chapter II, the pretest in Chapter III and Experiments 1 and 2 in Chapter IV) can be analyzed using the corresponding systematic and heuristic processing items. Analyzing both constructs separately revealed that consistently across four studies, ingroup information was indicated to be processed more systematically than heuristically (Cohen's *d*'s = 1.37, 0.35, 1.59, and 0.43 for the experiments in Chapters II.5, III.2, IV.5, and IV.6, respectively). In Experiment 2, Chapter IV, this pattern shifted when participants were put under cognitive load (*d* = -0.29), which is in line with our hypotheses. For outgroup information, however, the pattern was not consistent (*d*'s = -0.24 and 0.98 for Experiments in Chapter II.5. and IV.5., respectively).

Yet, we think it was important to show that an ingroup deviant elicited a relatively deeper mode of processing than an outgroup deviant. That this was in fact the case was shown both in the processing measures we used, and in the fact that a decrease in processing depth led to less devaluation of norm deviants.

One additional issue that arises from the application of the HSM is the distinction between several motivations that may lead people to process information systematically. Chen & Chaiken (1999) and others (Chaiken et al., 1999; Chaiken et al., 1989, 1996) differentiated between 3 core motivations (i.e., defense motivation, accuracy motivation, and impression motivation) that can elicit systematic information processing. In the current dissertation, we did not focus explicitly on this distinction but assumed that defense motivation (i.e., defending the self-concept) was the guiding motive. We believe that disentangling the measure of these motivations could allow a more precise analysis of what drives ingroup members to process information about ingroup deviants more systematically. For example, ingroup members might not solely be interested to defend their ingroup and the associated social identity (i.e., being defense motivated). It is also plausible to assume that they want to make accurate judgments, because judging others is a core issue in almost every social situation (Ham et al., 2009). In particular, when it comes to judgments that affect their group's image, individuals should be concerned to judge as accurately as possible. In a similar vein, impression motivation processes could occur when being confronted with a, potentially unknown, ingroup member. People might than process systematically in order to understand the underlying causes and reasons for the deviant's behavior. This argument

is in line with Sargent (2004) and his idea of attributional complexity. Attributional complex people are more likely to infer abstract external causes of behavior, thus being particularly inclined to establish a more accurate and appropriate impression of a deviant. Nonetheless, the goal of the current work has been reached insofar as we were primarily interested in systematic processing as a general mechanism. A more concise differentiation of the motivational sub-concepts should be addressed in future research. Indeed, a deeper analysis of how motivational, group-based processes affect and interact with information processing depth of in- and outgroup deviance might also need further conceptual work, as will be highlighted in the following.

V.1.2. Ingroup Identification, Black Sheep and Ingroup Bias

In most of the current studies and experiments, we measured ingroup identification. In line with prior research on the BSE (Bègue, 2001; Branscombe et al., 1993) and inferences drawn from SIT (Tajfel & Turner, 1979; see also Brown, 2000), we expected both the BSE and the systematic processing effect to be stronger among highly identified group members. However, our results only provide modest support for this assumption. In Chapter IV, ingroup identification did not interact at all with any of the other independent variables, and correlated only moderately with devaluation or systematic processing. Only in Experiment 1 of Chapter I, we found a moderation of the systematic processing effect. Highly identified participants in particular processed ingroup deviance more systematically than outgroup deviance. Obviously, the relation between ingroup identification and the BSE, or ingroup bias in general, is far from straightforward, and our mixed results are not the first indicators for this assumption. In fact, research on the relation between ingroup identification and ingroup bias is rich (for a meta-analysis, see Hinkle & Brown, 1990) but has also shown that overall, correlations between ingroup identification and ingroup bias are low, and also contrary patterns occur (see Brown, 2000). Therefore, understanding the BSE as a sophisticated form of ingroup bias (Marques & Paez, 1994) may also suffer from inconsistent effects of ingroup identification when it comes to positive intergroup differentiation. Turner (1999) resolutely criticized the identification-bias hypothesis, primarily because SIT did not explicitly state this link. Turner also objected to the fact that this link has mainly been tested using correlational designs (but see Jetten, Spears, & Manstead, 1997; Noel, Wann, & Branscombe, 1995), opening the possibility that other, undetected variables

are responsible for the effects. Moreover, he objected on the conceptualization of ingroup identification as being appropriate for any comparison dimensions, and criticized measures of identification that are confounded by interpersonal components instead of purely group-related. Although these criticisms have been addressed and partly outweighed (see Brown, 2000), some of these aspects might be responsible for our rather inconsistent pattern of results. For example, the primary comparison context we used for the BSE experiments was the intra-German East versus West distinction. We found a BSE as well as the predicted systematic processing effect in the corresponding studies, suggesting the East German participants found their ingroup to be highly relevant and necessary to protect. However, except for Experiment 1 in Chapter I, the extent of identification did not moderate the BSE. Probably, group membership, or the mere categorization suffices in this context. Given the relatively high extent of ingroup identification in the corresponding studies, a typical distinction into low versus high identifiers (i.e., by means of standard deviations) may not reflect a qualitatively sufficient difference between those who are strongly rooted in the group and those who are not. Thus, manipulating ingroup identification (e.g., Jetten et al., 1997) or using intergroup-contexts with more identification variance could provide clarifying evidence on whether the effects of information processing on the BSE depend on the individual's rootedness in the group.

This seems advisable: None of the studies analyzed in the meta-analysis by Stratton et al. (2010) manipulated ingroup identification experimentally. Hence, although it is widely believed to be a central moderator of the BSE, a causal impact of identification on evaluations of ingroup deviants has not yet been reported. Surprisingly, despite its theoretical importance, only a small amount of studies (18 out of 99 in the meta-analysis) measured ingroup identification at all. Does that point to the possibility that the remaining studies did measure identification, but not report it, due to lacking effects? This is speculation. But given the theoretical relevance for the effect, it seems unlikely that around eighty percent of the black sheep effect studies in the meta-analysis did not assess ingroup identification.

Additionally, a different *conceptual* approach seems necessary. Leach et al. (2008) argue that the mixed results of ingroup identification in the ingroup bias literature stems from the use of unitary compounded measures of ingroup identification. Such a compound measure was also used in the current dissertation. Leach and

colleagues argue that ingroup identification should not be understood as a general psychological connection of ingroup members to groups, but more of a hierarchical, multidimensional connection because several sub-concepts of being ingroup identified could have different outcomes. So, the current dissertation, as well as the meta-analysis by Strutton et al. (2010) suggest that the moderating role of ingroup identification indeed needs further refinement and support.

V.1.3. Critical Comments on the Measure of Hemispheric Activation

One major issue we feel important to discuss with regard to Experiment 2 in Chapter II is that our conceptualization of hemispheric location of systematic versus heuristic processing may be oversimplified. Whereas the overlap with left-hemispheric conceptualizations appears relatively high—serial analytic processing may very well reflect the core of systematic information processing—it seems less clear-cut with regard to heuristic processing. Holistic processing, focusing on the overall configuration of information and proposed to dominate in the right hemisphere, shares central aspects with the concept of heuristic processing (e.g., being rather intuitive, less analytic), but also focusses on other properties of information (Derryberry & Tucker, 1994; Levy, 1969; Mildner, 2007). Thus, there seems to be an asymmetry in the hemispheric representation of our systematic and heuristic processing concept. Nonetheless, our results support the idea of our dichotomic conceptualization. As a matter of fact, the finding that by default, participants processed relatively right-hemispheric, or heuristic (see II.6.2.), strengthens our idea, as it is quite likely that the experimental experience itself is of relatively low relevance to participants.

There is research that challenges the view that the hemispheres are characterized by the "either-or" distinction, encouraging a multidimensional view that considers inter-individual differences (Goulven & Tzourio-Mazoyer, 2004). Precisely, it has been argued that effects of brain lateralization have been exaggerated, and thus oversimplified the analysis on cognition (Sala, 1999). The large amount of findings in favor of this coarse distinction (e.g., Bowers, Blonder, Feinberg, & Heilman, 1991; Levy, 1969; Metcalf et al., 1995; Tompkins & Mateer, 1985) as well as our pattern of results make us confident that as a proxy for information processing modes, the measure of relative hemispheric activation is still valuable. Given the novelty of the current finding and its application to an intergroup context, future research should try to replicate our

findings. It could be helpful to introduce other measures, as for example responses to chimeric faces (Bourne, 2008; Friedman & Förster, 2005; Indersmitten & Gur, 2005) to allow generalization of the current results. In this regard, it would be desirable to find a measure sensitive enough to grasp probably weaker alterations in hemispheric activation among women (see Chapter II, Experiment 2).

One specific proposal that might further the validity of our findings that ingroup versus outgroup information is processed differentially, is a direct manipulation of hemispheric activation. Assuming that the extent of information processing determines how strongly people devalue in- and outgroup deviants, an alteration in hemispheric activation should affect responses to norm deviants. For example, hemispheric activation could be experimentally induced by squeezing a soft ball with either the right or left hand prior to the black sheep manipulation (Baumann et al., 2005). Right-hand ball-squeezing would then activate the left hemisphere, hence increasing systematic processing. Left-hand ball-squeezing would activate the right hemisphere, hence increasing heuristic processing. Given the finding that motor activity may stimulate hemispheric activation (Keenan, Nelson, O'Connor, & Pascual-Leone, 2001), the line-bisection task may also be used to manipulate, instead of measure, hemispheric activation. To activate right-hemispheric activation, the left part of the bisected line could be longer in 80% of presentation trials, leading to increased use of the left finger. Vice versa, the left hemisphere could be activated by the right part being longer in 80% of the trials.

Orthogonally manipulating deviant's group membership with left- versus right-hemispheric activation should then influence the responses to norm deviants. When systematic processing is possible (i.e., left-hemispheric dominance), the BSE should occur, because ingroup information is processed more systematically than outgroup information. When heuristic processing is instigated (i.e., right-hemispheric dominance), the BSE should diminish. In how far the prior activation of hemispheric dominance overrides information processing modes triggered by the group membership information is yet to be discovered. Probably, a highly sensitive measure for devaluation is necessary, as changes in hemispheric activation might be to subtle to affect conscious and potentially strategy-driven self-report measures. One measure that could serve this goal was presented in Chapter IV, and will be critically discussed with regard to hemispheric activation in the following.

V.1.4. Automatic Response Priming and Hemispheric Activation

The current work raises an important issue with regard to the relation between hemispheric activation (see Chapter II, Experiment 2) and semantic category priming (i.e., the automatic response paradigm used in Chapter IV, Experiment 3). In both experiments, we found that ingroup deviance was processed more systematically than outgroup deviance. Experiment 3 in Chapter IV further revealed stronger response facilitation for punishment-related associations after ingroup deviance. Although this parallelism seems straightforward, it is not. In fact, it has been shown that semantic category priming is affected by visual field processing, and thus subject to different hemispheric activation patterns (e.g., Collins, 1999). For example, the left hemisphere seems superior in processing target words that are closely linked to the meaning of word primes, whereas in the right hemisphere, word meanings are activated more slowly, and less selectively (e.g., Koivisto, 1997). Moreover, this relation seems to be moderated by the time course of the priming trials—depending on the stimulus onset asynchrony (SOA). The SOA reflects the time interval between the onset of the presentation of the prime and the onset of the target. With longer SOAs (e.g., above 500ms), a shift in semantic category priming from the left to the right hemisphere has been observed (Collins, 1999; see also Shears & Chiarello, 2003). Given the relatively short SOA in our experiment (205ms), this suggests that the category priming effects are primarily based on information processing in the left hemisphere. This strengthens our assumption that, when systematic processing is possible, the BSE occurs due to the increased processing depth of ingroup deviance.

When cognitive load was administered, the BSE disappeared in the semantic priming task used here. This may be due to another effect of hemispheric activation. In their study, Shears and Chiarello (1999) reported that cognitive load appears to have an impact on semantic category priming, shifting to rather cross-hemisphere instead of single-hemisphere processing. However, Shears and Chiarello manipulated cognitive load during the semantic priming task whereas in our experiment, load was administered while participants processed the deviance information. In fact, this is important: Apparently, our cognitive load manipulation did not affect the automatic response towards the prime, as we found no main effect of load on the punishment and ignorance responses (see Chapter IV.7.). Instead, the manipulation seemed to alter the strength of the association between the deviant and the groups, therewith decreasing

the activation of punishment-related responses after presentation of the social category prime ("perpetrator"). Clearer evidence for this process, however, is yet to be adduced.

One way to integrate our findings with research on the interplay of hemispheric activation and semantic category priming could be addressed using our paradigm, adding the factor of visual field congruency. When both prime and target are presented in the same visual field, participants should be generally faster, because attention does not need to shift to the other visual field. However, if left-hemispheric activation increases the likelihood for systematic processing, the BSE should only emerge when the congruency is in the right visual field, and thus processed predominantly in the left hemisphere.

V.1.5. Implications for Social Justice Research

One major implication we draw from our set of studies is that our findings could stimulate research on the *type* of responses people give towards deviants. The idea that punishment as a form of justice is a way to restore societal norms is mirrored in the SIT explanation of the BSE: Ingroup devaluation and punishment serve the need for group protection (Marques & Paez, 1994). By punishing or symbolically excluding ingroup deviants, groups are protected from those who question the ingroup's image and its underlying norms.

Social justice research has made the distinction between two major ways to punish individuals and thus restore justice. Precisely, the question of whether people support *retributive* or *restorative* means of justice (Wenzel, Okimoto, Feather, Platow, 2008) may depend on how deeply they process information about a deviant. *Restorative* justice strongly depends on deliberative processes that have to include the consideration of a variety of levels of justice (i.e. healing the victim, rebuilding moral self of the offender, healing communities; Braithwaite, 2002). *Retributive* justice in contrast is rather straightforward: Once punishment is imposed (i.e., jail, penalty), justice is often considered done (Wenzel et al., 2008). One could speculate that changing modes of information processing may alter people's preferred way of restoring justice. According to Wenzel et al., taking group membership of the deviant into account is then absolutely crucial. These authors argue that a restorative notion of justice becomes more likely salient when deviant and respondent share a common identity. Thus, a primary goal of ingroup members who find themselves confronted with norm deviants should be the

successful re-integration of the deviant. Very likely, this effortful task is only possible when ingroup members possess the necessary processing capacities. If they do not, a retributive notion of justice becomes more likely salient. This question could be approached using measures for both restorative versus retributive justice while manipulating group membership of the deviant and the mode of information processing. This issue seems particularly relevant, because notions of *restorative* justice in intergroup contexts yet received little attention, and are often not "offered" as potential reactions to norm deviance in studies.

In fact, recent attempts to test moderators of *retributive* justice in an intergroup setting have been undertaken. Van Prooijen and Lam (2007) tested the influence of status and categorization of an offender on retributive justice judgments. In line with research on the BSE, social justice researchers propose that through punishments, people are able to symbolically exclude an ingroup offender from their group, thereby protecting their positive association with the ingroup (Vidmar, 2002; Wenzel et al., 2008). Drawing from SIT, van Prooijen and Lam predicted that this should be the case in particular, when the ingroup has high status compared with the outgroup, because a high-status ingroup reflects positively on the individual's social identity. These authors found the expected pattern of results. As status information may affect information processing of group information (Sekaquaptewa & Espinoza, 2004), such cognitive processes we presume are likely to affect justice judgments. In another set of studies, van Prooijen (2006) could show that both retributive emotions (e.g., anger) and punishment intentions were affected by both an offender's group membership and guilt probability. A BSE was found when guilt was certain while the opposite was shown when guilt was uncertain. The findings that such negative emotions are related to systematic processing (e.g., Bless, Schwarz, & Wieland, 1996; Bodenhausen, Kramer, & Suesser, 1994) and thus bias jurors' judgments (e.g., Semmler & Brewer, 2002) further strengthen our assumption that the depth of information processing is an underlying factor that can determine retributive justice. In the following, we will highlight that there is even more reason to assume that the individual's mode of information processing affects punitive reactions towards deviant and offenders

V.1.6. Severity of Norm Deviance and its Relation to Systematic Processing

One central issue that needs consideration and that is directly related to the implications of research on social justice, is the complex relation between severity of norm deviance, an offender's group membership, and devaluation/punishment. We have shown that devaluation of norm deviants is directly affected by individuals' mode of information processing, and the mode of information processing depends on a deviant's group membership. Considering the severity of norm deviance is crucial, because previous research has shown that this is an important predictor for punitive responses (e.g., Carlsmith, Darley, & Robinson, 2002). In fact, punitive responses seem less sensitive to social factors for severe offenses, in comparison with rather moderate offenses (Rucker, Polifroni, Tetlock, & Scott, 2004), as used in the current dissertation. The problem with highly severe offence material is that ceiling effects occur, which make moderations, for example by social categorization, unlikely (Van Prooijen & Lam, 2007). Based on the fact that punishment is a functional and important tool in societies (Fehr & Gächter, 2002), information including very severe offenses (e.g., rape or murder scenarios) should, per se, instigate a systematic mode of information processing.

It is an empirical question if this extent of processing depth is moderated by an offender's group-membership. In fact, we believe it does, given the findings on the BSE, and the findings we conveyed. In our studies, both with relatively low severity (i.e., hiding a book) and moderate severity (i.e., vandalism, see Chapter IV.7.), we found the BSE and the proposed information processing difference. In a study by Kerr, Hymes, Anderson, and Weathers (1995, Study 2), information about child molestation was presented to participants in a mock juror paradigm. With this relatively severe offense, a BSE was found, too. However, research on the similarity-leniency effect suggests (e.g., Taylor & Hosch, 2004; see also Kerr et al., 1995, Study 1) an opposite effect, or no effect of social categorization on punitive responses at all. In any case, more sensitive measures that counteract the problem of potential ceiling effects are necessary.

Effects of offence severity on information processing modes, to our knowledge, have not yet been reported. In one study we conducted that is not dealt with here, we found initial evidence that might shed light on this aspect. Participants in this study received information about less severe norm deviance (i.e., a student behaving negatively in a lecture) or more severe deviance (i.e., a student robbing and bashing up another person) while the deviant was either an ingroup member or not. For the deviant

not being labeled ingroup member, no group membership information at all was given. Results revealed a strong effect of the severity of norm deviance insofar that hard norm deviance was devalued more strongly than soft norm deviance. This effect was independent of the deviant's group membership, suggesting that the question of severity overrides ingroup relevant concerns when it comes to punishing harsh norm deviance. Information processing was also measured, applying the self-report measure used in the previous experiments, but was not affected by the severity of the norm deviance. However, further analysis revealed that among participants highly-identified with their ingroup, systematic processing was stronger when they were confronted with hard norm deviance performed by an ingroup member compared with soft ingroup norm deviance and hard non-ingroup deviance. Although only descriptively, these findings reveal that harsh punishments may not per se elicit stronger information processing, but in interaction with social identity relevant concerns. Future research should address this issue by manipulating both group membership and severity of the deviance to test the generality of the strength of group membership information in norm deviance contexts. Evidently, more sensitive measures are required to disentangle these separate effects.

We think that the effect of information processing modes on devaluation and punishment also has practical implications for legal matters, in particular with regard to jury decisions. Jurors are always asked to process information of a crime carefully and analytically to ensure that they arrive at the correct verdict (Semmler & Brewer, 2002). Thus, it seems important to understand which information processing modes lead to which judgmental outcomes. Of course, we refrain from claiming that it is the amount of processing invested that solely explains a juror decision. Jury trials and decisions are evidently more complex than the laboratory scenarios used in most research, and qualitatively different. Moreover, other factors have been shown to play an important role for verdicts, for example personality factors (Bray & Noble, 1978), juror demographic characteristics (e.g., Golash, 1992), presence and compilation of other actors in the courtroom (e.g., Kerr et al., 1995) or consistency of testimony (Berman & Cutler, 1996). Nonetheless, the extent of information processing can account for judgment biases in certain directions, as shown by Semmler and Brewer (2002). In their study, processing depth was manipulated by eliciting sad mood. In line with previous research (e.g., Bless et al., 1996), sad mood induced more careful, detailed and analytical

processing. Mock jurors in the sad-mood condition recalled testimonial inconsistencies more accurately than neutral-mood mock jurors, and tended to perceive this as an indication that the testimony was inaccurate. Therefore, depending on whose side a witness is, a more accurate detection of such inconsistencies would probably affect a juror's decision. Thus, a detailed analysis of how information processing affects this decision-making process seems important to ensure fair trials in court.

V.2. Conclusion

In politics, policy makers are constantly judged for what they do (or do not do) by both own and other party members. For Germans, meeting other German tourists in foreign countries is often synonymous with being embarrassed for how they (but not themselves) contribute to the ingroup's image, resulting in deidentifcation from the group of Germans and a desire for maximum distance to the "others". Psychologists in particular react highly alarmed and disturbed when a psychologist presents "phenomena" like mind reading or spoon-bending publicly in the media. Individuals are highly concerned about their social identity, and therefore, highly attentive to any information that jeopardizes it. As a consequence, judgments are made that help restoring one's social identity. We aimed to identify the determinants and formation of such social judgments when it comes to dealing with individuals that do not follow and confer to norms their group prescribes—the black sheep. We have presented a series of experiments that claim that judgments of undesired (because negatively behaving) ingroup members strongly depend on how much people elaborate information they receive. To conclude, we are confident that we introduced an important cognitive factor for understanding how and why people respond to acts of norm deviance. In fact, we think that the current research enriches not only the BSE literature but intergroup process literature in general—given that the BSE is a sophisticated form of ingroup bias, it seems both logical and necessary to address the question of whether changes in information processing also account for more general effects of intergroup differentiation, including ingroup bias, discrimination and prejudice.

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Appendix

Appendix 1: Situation descriptions used in the current dissertation (in German)

Situation description used in Chapter I, Experiments 1, 2 and 3 and in Chapter II, Experiment 1, part 3 and Experiment 2.

Note that the student was either described as originating from *Weimar* (Ingroup) or *Munich* (Outgroup).

Wegen eines Studierenden aus *Weimar* befand sich ein Buch nicht an der eigentlich vorgesehenen Signatur in der Jenaer Universitäts-Bibliothek. Trotz Suche an verschiedenen, thematisch ähnlichen Orten war das Buch nicht aufzufinden. Da bereits eine Anzahl Studierender angaben, daß sie das Buch unbedingt brauchten, wurde eine aufwendige Suche nach dem Buch eingeleitet, welches schließlich, gut versteckt, in einem völlig anderen Stockwerk gefunden wurde. Dummerweise hatte der Täter einen Zettel mit Telefonnummern als Lesezeichen hinterlassen, so dass der Studierende aus *Weimar* aufgefunden werden konnte.

Situation description used in Chapter II, Experiment 1, part 2 and Experiment 3.

Im Rahmen einer gemeinsamen Veranstaltung der Friedrich-Schiller-Universität und der Fachhochschule findet im Hörsaal am Campus Ernst-Abbe-Platz eine Ringvorlesung zum Thema „Schule in Deutschland: Reformstau oder wirkliche Neuerung?“ statt. Der Hörsaal ist bis auf den letzten Platz mit interessierten Studierenden beider Institutionen gefüllt. Inmitten eines Vortrags zum besagten Thema steht plötzlich ein *Studierender der Universität Jena* von seinem Platz auf. Während sich Unmut breit macht und bereits einige der Zuhörenden nervös um sich schauen, steigt die Person wenig rücksichtsvoll durch die Reihen nach vorne zum Rednerpult. Dort angekommen argumentiert die Person vehement mit dem Redner, um ihn im Anschluß schließlich offen zu beschimpfen. Erst nach einigen Augenblicken kommt der Studierende zur Ruhe und verläßt, von einigen Kommilitonen begleitet, den peinlich berührten Hörsaal.

Situation description used in Chapter II, Experiment 4.

Note that the student was either described as originating from *Weimar* (Ingroup) or *Munich* (Outgroup).

In der Nacht geht eine Gruppe von Personen an einem gerade fertig gestellten und noch nicht genutzten Wohnheim für Studierende vorbei und zertrampelt dabei frisch angelegte Pflanzenanlagen, reißt den Briefkasten aus der Verankerung und zerkratzt mit dem Schlüssel Fensterscheiben im Erdgeschoss und steigt in ein Auto mit *Weimarer* Kennzeichen.

Situation description used in Chapter II, Experiment 1, part 1.

Während des Boykotts gegen Studiengebühren haben die Studenten der Fachhochschule und der Friedrich-Schiller-Universität in Jena verschiedene Aktionen durchgeführt. Am vergangenen Samstag ereignete sich bei einer sonst friedlich verlaufenden Demonstration jedoch ein schwerer Fall von Vandalismus. Aufgrund von Augenzeugenberichten konnte der Täter durch sein Boykott-T-Shirt mit der Aufschrift „Keine Studiengebühren an der Uni Jena und nirgendwo!“ als Student der Friedrich-Schiller-Universität Jena identifiziert und auch überführt werden. Er hatte ein am Fahrbahnrand parkendes Fahrzeug der Marke VW Polo schwer beschädigt, indem er mutwillig den linken Außenspiegel abtrat und einen erheblichen Lackschaden verursachte. Die Polizei schätzt den entstandenen Schaden auf etwa 2.200 Euro.

Appendix 2: Stimuli used in the line-bisection task in Chapter I, Experiment 2.

a) Centrally bisceted line – both lines of equal length

b) Line bisected left of the centre – right line longer

c) Line bisected right of the centre – left line longer

Appendix 3: Original German prime and target words used in Experiment 3, Chapter IV.

Primes:

TÄTER (perpetrator)

BÄCKER (baker)

Punishment targets:

BESTRAFEN (to punish)

VERGELTEN (to retaliate)

BELEHREN (to instruct)

Ignorance targets:

ÜBERSEHEN (to overlook)

WEGSCHAUEN (to look away)

VERGESSEN (to forget)

Summary

Based on the fact that group membership is a central aspect of a person's identity, people judge ingroup norm deviants who question the ingroup's image more negatively than comparable outgroup norm deviants. This so-called black sheep effect (BSE, Marques & Yzerbyt, 1988) seems primarily grounded in group-based motivational concerns. Based on social identity theory (Tajfel & Turner, 1979), this effect seems primarily driven by the need to protect and enhance the ingroup's image (Marques & Paez, 1994) and processes of associative proximity between a deviant and one's ingroup (Jonas, 2009).

The current dissertation deals with the question whether the BSE is also grounded in different information processing modes that are based on the deviant's group membership. Thus, it is proposed that in addition to motivational concerns and processes that lead to the BSE, basic cognitive information processing modes determine the extent of how strongly norm deviants are devaluated.

Based on a model of information processing (Chen & Chaiken, 1999), it is argued that information about an ingroup deviant is processed more systematically than comparable information about an outgroup deviant. This increased systematic processing of ingroup information should also include thoughts about negative consequences for the group's image and one's social identity, and therefore elicit stronger attempts to restore the positivity of the ingroup's image. Nonetheless, it is also possible that the mere associative proximity of a deviant to one's ingroup, and thus the self, leads to stronger devaluative responses towards ingroup compared in comparison with outgroup members—if this association is properly formed. Across seven studies, these assumptions were empirically tested.

In a first set of experiments (Chapter II), we used a self-report measure (Experiment 1) and a measure of relative hemispheric brain activation (Experiment 2) to assess information processing of in- and outgroup deviant information. As expected, information about an ingroup deviant was processed more systematically than

information about an outgroup deviant. In Experiment 1, this effect was particularly pronounced among those participants being highly identified with their ingroup. In the third experiment of this series, it was tested whether these differences in information processing account for differences in devaluation of ingroup versus outgroup deviants. Both group membership of the deviant as well as processing depth were manipulated. As expected, the BSE emerged in the control condition, where ingroup deviance is processed more systematically than outgroup deviance. However, when participants were prompted to process systematically before receiving the deviance information, the BSE disappeared, due to the fact that now, outgroup deviance was also devaluated as strongly as ingroup deviance. These results show that information about ingroup deviance is processed more systematically than information about outgroup deviance while these differences in information processing affect the devaluation of norm deviants.

The second empirical part (Chapters III and IV) of the dissertation complements the findings from the first Chapter, focusing on the effects of restrained cognitive resources on the BSE. Following the idea that systematic information processing of ingroup deviants leads to stronger devaluation, restraining cognitive resources should lead to less systematic processing, and thus less devaluation. A pretest revealed a correlational link between information processing and devaluation. The more systematically participants processed the information about the ingroup deviant, the stronger were their devaluative responses. In the first experiment, a BSE emerged, and information about an ingroup compared to an outgroup member was processed more systematically. The second experiment aimed to test the effect of decreased information processing on devaluation of an ingroup deviant. As expected, participants devaluated an ingroup deviant less when systematic processing was hindered, suggesting the causal influence of processing modes on deviant devaluation. In the third experiment, we extended the previous findings by showing that on a very basic level of cognitive processing, a BSE emerges (see also Jonas, 2009), but only when systematic processing was possible. Using an automatic response priming paradigm, we found stronger punishment after ingroup compared to outgroup deviance when participants could process information systematically, but not when they were put under cognitive load while reading the vignette. A parallel effect was found for ignorance of deviance. Participants had more difficulties ignoring an ingroup compared to an outgroup deviant

when they could process systematically. This experiment revealed that the BSE is also based on associative proximity between a deviant and one's ingroup, at least when such an association can be properly formed (i.e., when systematic processing is possible).

Following the empirical analyses of the research question, the findings are discussed and implications for future research on the BSE will be discussed. Taken together, the current dissertation reveals that the BSE is more than a motivational phenomenon, but strongly affected by how much cognitive effort is invested to process information about norm deviants. Focusing on modes of information processing thus is of vital importance for future research on the BSE, as the current research shows that social judgments and evaluations are complex interactions between motivational and cognitive components.

Zusammenfassung

Zugehörigkeit zu sozialen Gruppen ist ein zentraler Aspekt der Identität eines Individuums. Daher werden Abweichler der Eigengruppe, die das Bild der eigenen Gruppe in Frage stellen und beschädigen, negativer bewertet als Abweichler einer Fremdgruppe. Auf Grundlage der Theorie der Sozialen Identität (Tajfel & Turner, 1979) wird angenommen, dass der Schutz und die Aufrecherhaltung der eigenen Gruppe die treibende Kraft dieses sogenannten "Black Sheep Effects" (BSE, Marques & Yzerbyt, 1988) ist. Allerdings gibt es auch Befunde, die darauf hinweisen, dass die assoziative Nähe des Devianten zur Eigengruppe, und damit zu seinen individuellen Mitgliedern, zu dem Effekt führt (Jonas, 2009).

Die vorliegende Arbeit beschäftigt sich mit der Frage, ob der sogenannte BSE auch darauf zurückzuführen ist, dass Informationen über Abweichler einer Eigengruppe im Vergleich zu Abweichlern einer Fremdgruppe unterschiedlich, nämlich systematischer und tiefer, verarbeitet werden. Es wird also vorgeschlagen, dass zusätzlich zu den motivationalen Prozessen, die zum BSE führen, auch kognitive Verarbeitungsprozesse dazu beitragen, wie stark Normabweichler abgewertet werden.

Aufbauend auf einem Modell zur Informationsverarbeitung sozialer Stimuli (Chen & Chaiken, 1999) wird zunächst argumentiert, dass Information über einen Eigengruppenabweichler tiefer verarbeitet wird als vergleichbare Information über einen Fremdgruppenabweichler. Die eigene Gruppe stellt einen wichtigen Standard für die soziale Identität eines jeden Gruppenmitglieds dar, und bietet Normen, Weltanschauungen und sozialen Halt. Daher wird angenommen, dass Informationen, die das Bild der Eigengruppe betreffen weitaus relevanter für Eigengruppenmitglieder sind als vergleichbare Informationen, die eine Fremdgruppe betreffen. Folglich sollte derartige Eigengruppeninformation relativ systematischer verarbeitet werden als vergleichbare Fremdgruppeninformation. Diese tiefere Verarbeitung sollte schliesslich zu stärkerer Abwertung des Eigengruppendevianten führen, da mit der tieferen Verarbeitung der Eigengruppeninformation auch stärker über die negativen

Konsequenzen für die eigene soziale Identität nachgedacht wird. Entsprechend sind stärkere Maßnahmen notwendig, um die Eigengruppenpositivität aufrecht zu erhalten. Allerdings ist es ebefalls möglich, dass die reine, assoziative Nähe eines Abweichlers zur Eigengruppe bereits ausreicht, um stärkere Abwertung des Devianten auszulösen. Dies erfordert jedoch, dass eine entsprechend starke Assoziation aufgebaut wurde. In sieben Studien, unterteilt in zwei Abschnitte, wurde diesen Annahmen nachgegangen.

In einer ersten Experimentalserie (Kapitel II) wurden ein Fragebogenmaß (Experiment 1) sowie ein Maß zur Messung relativer, hemisphärischer Hirnaktivierung genutzt (Experiment 2) um zu testen, ob Eigen- und Fremdgruppendevianz unterschiedlich verarbeitet wird. Wie erwartet zeigte sich, dass Eigengruppendevianz im Vergleich zur Fremdgruppendevianz systematischer verarbeitet wurde, insbesondere bei jenen, die hoch mit ihrer Eigengruppe identifiziert waren (Experiment 1). Schliesslich wurde in einem dritten Experiment ein erster Test unternommen, der zeigen sollte, dass sich erhöhte systematische Verarbeitung auf Abwertung von Normabweichlers auswirkt. In einem experimentellen Design wurde sowohl die Gruppenzugehörigkeit des Abweichlers als auch die Tiefe der Informationsverarbeitung manipuliert. Wie erwartet zeigte sich in der Kontrollbedingung, in der Eigengruppeninformation systematischer und Fremdgruppeninformation heuristischer verarbeitet wurde, der BSE. Wurden Versuchsteilnehmer allerdings vor Darbietung der Devianzinformation angeregt, systematisch zu verarbeiten, verschwand der Effekt, da nun auch der Fremdgruppenabweichler stärker abgewertet wurde. Die Befunde dieser ersten Experimentalserie zeigen, dass Information über Eigengruppendevianz systematischer verarbeitet wird als Information über Fremdgruppendevianz, und das die Tiefe der Verarbeitung beeinflusst, wie stark Normabweichler abgewertet werden.

Der zweite Teil der Dissertation (Kapitel III und IV) fokussiert darauf, welchen Einfluss die Einschränkung kognitiver Ressourcen auf die Bewertung von Normabweichlern hat. Der Idee folgend, dass tiefere Informationsverarbeitung bei Eigengruppenabweichlern mit dessen stärkerer Abwertung einhergeht, sollte die Einschränkung kognitiver Ressourcen dazu führen, dass Individuen weniger systematisch verarbeiten, und damit Abweichler weniger abwerten. Eine Vorstudie zeigt korrelativ, dass bei Eigengruppendevianz tiefere Verarbeitung mit stärkerer Abwertung zusammenhängt. Im ersten Experiment zeigt sich, dass der BSE und der im ersten Abschnitt gefundene Informationsverarbeitungseffekt gemeinsam auftreten, und damit

die Befunde aus der beiden Experimenten des ersten empirischen Teils der Dissertation repliziert und erweitert. Im zweiten Experiment von Kapitel IV wurde ein Eigengruppenabweichler präsentiert, während Versuchspersonen entweder unter kognitiver Belastung standen, oder nicht. Wie erwartet zeigt sich hier, dass ein Abweichler weniger abgewertet wird, wenn systematische Verarbeitung behindert wird. Das Ziel des letzten Experimentes war es, stärker auf die kognitive Basis des BSE zu fokussieren, um den Effekt der Informationsverarbeitungstiefe zu untersuchen. Basierend auf der Annahme, dass allein die assoziative Nähe eines Täters zur Eigengruppe ausreicht, um einen BSE zur erzeugen wurden mittels einer lexikalischen Entscheidungsaufgabe Reaktionsgeschwindigkeiten auf Bestrafungsassoziationen gemessen, die entweder nach einem „Täter"-Prime, oder einem Kontroll-Prime gezeigt wurden (siehe auch Jonas, 2009). Zuvor wurden erneut die Gruppenzugehörigkeit des Abweichlers, sowie orthogonal kognitive Belastung manipuliert. Auch hier zeigte sich der BSE, wenn Versuchsteilnehmer systematisch verarbeiten konnten—sie reagierten schneller auf assoziierte Prime-Zielwort Kombinationen nach Eigengruppen- im Vergleich zu Fremdgruppendevianz. Wie erwartet trat der Effekt jedoch nicht auf, wenn die Probanden während der Darbietung der Abweichlerinformation unter kognitiver Beanspruchung standen. Dieses Experiment zeigt, dass der BSE ebenso auf reine assoziative Nähe zurückgehen kann, jedoch nur, wenn eine solche Assoziation aufgebaut werden kann (d.h., wenn systematische Verarbeitung möglich ist).

Im Anschluss an die empirischen Analysen der Fragestellung werden die Befunde diskutiert, und Implikationen für die weitere Forschung im Rahmen des BSE aufgezeigt. Alles in allem zeigt die hier vorgelegte Arbeit, dass der BSE nicht allein ein motivational bedingtes Phänomen ist, sondern sehr stark dadurch beeinflusst wird, wie tief die Information, die Personen zur Verfügung steht, verarbeitet wird. Der Fokus auf solche Informationsverarbeitungsmodi ist also von entscheidender Bedeutung für die weitere Untersuchung des BSE, da er deutlich macht, dass soziale Bewertungen und Beurteilungen immer als komplexes Zusammenspiel motivationaler und kognitiver Komponenten verstanden werden muss.

Curriculum Vitae

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Ehrenwörtliche Erklärung

Ich erkläre hiermit, dass mir die Promotionsordnung der Fakultät für Sozial- und Verhaltenswissenschaften der Friedrich-Schiller-Universität Jena bekannt ist.

Ferner erkläre ich, dass ich die vorliegende Arbeit selbst und ohne unzulässige Hilfe Dritter angefertigt habe. Alle von mir benutzten Hilfsmittel, persönliche Mitteilungen und Quellen sind in der Arbeit angegeben. Bei der Durchführung der empirischen Studien haben mir folgende Personen in der jeweils beschriebenen Weise geholfen:
1. Bei den empirischen Studien in Kapitel II, III und IV haben Stephanie Heinecke, Tanja Mötzung, Marie-Susann Raschke und Alice Ruddigkeit als studentische Hilfskräfte bei der Rekrutierung von Versuchsperson und der Datenerhebung mitgewirkt.
2. Ferner haben bei der Studie 2 in Kapitel IV Angelika Bühler, Nils Kupfer, Flora Mehrabie, Volkan Yildrim und Sebastian Zietz bei der Rekrutierung von Versuchsperson und der Datenerhebung mitgewirkt.

Weitere Personen waren an der inhaltlich-materiellen Erstellung der Arbeit nicht beteiligt. Insbesondere habe ich hierfür nicht die Hilfe eines Promotionsberaters in Anspruch genommen und Dritte haben weder unmittelbar noch mittelbar geldwerte Leistungen von mir für Arbeiten erhalten, die im Zusammenhang mit dem Inhalt der vorgelegten Dissertation stehen.
Die Arbeit wurde weder im In- noch im Ausland in gleicher oder ähnlicher Form einer anderen Prüfungsbehörde vorgelegt. Weder früher noch gegenwärtig habe ich an einer anderen Hochschule eine Dissertation eingereicht.
Ich versichere, dass ich nach bestem Wissen die reine Wahrheit gesagt und nichts verschwiegen habe.

Ort, Datum, Unterschrift Gerhard Reese